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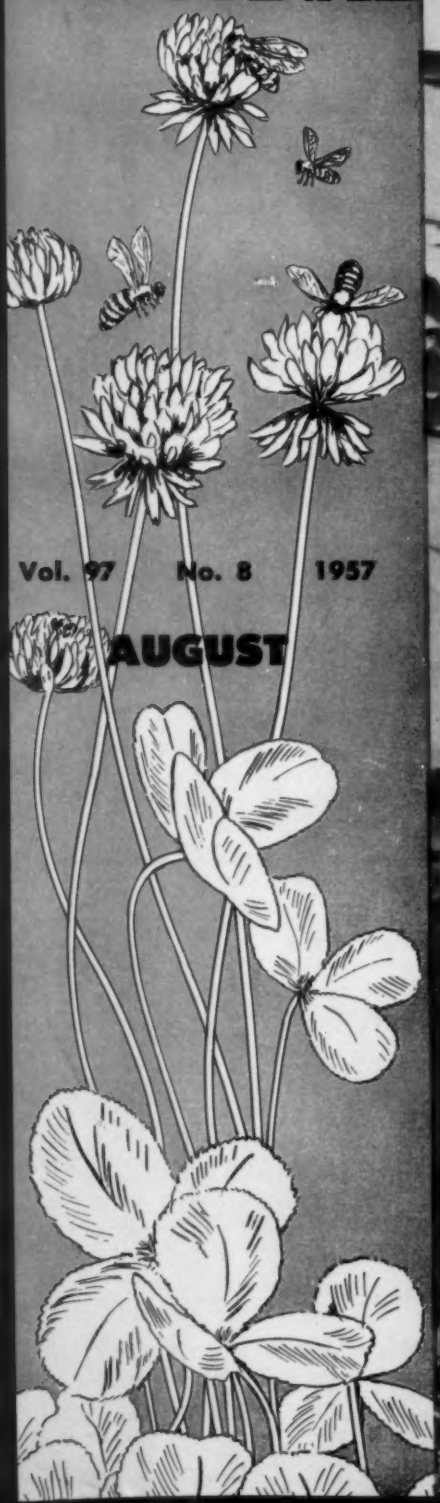

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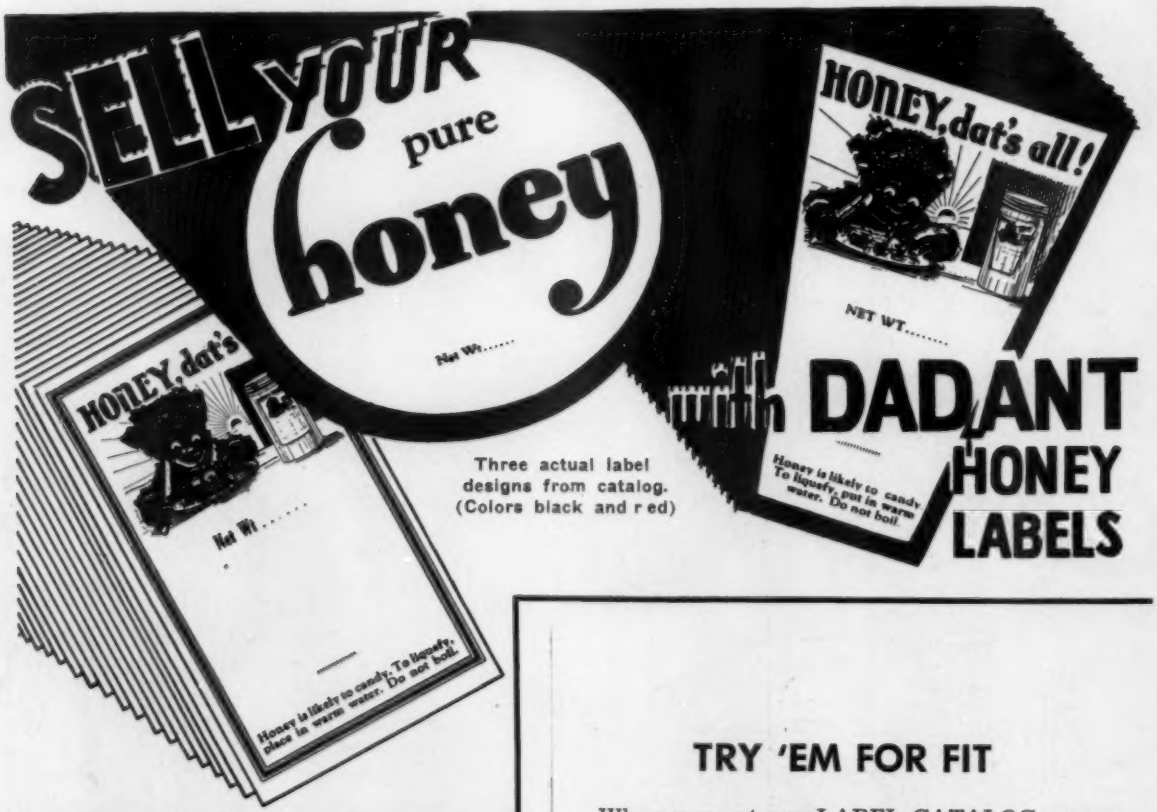
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The Commercial Beekeeper

Don't know where this picture was taken. It has been in our files a long time. But a good guess that it is from Florida. It shows an out-of-the-usual kind of commercial outfit with the long rows of hives facing in opposite directions, close together, and up on a platform apparently above a swamp. Sometimes these outfits are above water. Look at the two rows disappearing in the distance. Maybe the colonies have just been moved (or going out again) as they have holding slats on the fronts of the nearest row. More often than not these yards are moved in for a flow and moved out again when the flow is over.

The Hunt For New Honey Plants

by Robert M. Mead

As this location is far from ideal with a short summer flow and a fall flow that often fails, I became interested in honey plants very early in my beekeeping career. My first efforts to increase the honey plant flora were full of vigor but lacking in direction. I bought seed of about everything that I could find listed as a honey plant and scattered it far and wide and then waited for results.

As far as results from those first efforts were concerned it is doubtful if any bees ever benefited very much. There were a few handfuls of plants in a small honey plant garden that did well for a few years and then failed later from lack of care. Of those I sowed in the wild places and the waste land, only one ever took hold and did anything.

It is easy to jump into a new idea and later just as easy to discard it entirely if it does not succeed. It was especially so with the honey plant idea. Why keep at it? Well in the first place the original reason for keeping at it still existed. I operate in a territory that can well stand new honey plants and especially some that will fill in the more or less blank spots. What was needed the most was for me to stop and think about what I was trying to do.

Sowing seed hither and yon, without regard to soil conditions or existing plant life, was violating all natural laws and, of course, was doomed to failure from the start. I certainly need to know more about plants in general and honey plants in particular. I soon learned, and it is something that few people do know, that certain plants are very selective and fussy in their requirements. They do wonderfully well in one spot and a few miles away will not grow at all. There is much againts the introduction of new plants from the start, including unfavorable climate, wrong soil type, and above all competition from existing native plants.

I had to set up a kind of test for a prospective honey plant to pass. First, could it exist in our climate. Second, did I have a soil type available where it might succeed. Third, was it vigorous enough to spread and propagate itself once it was established. Fourth, was it actually a good honey plant. Fifth, was there any danger of its becoming an offensive weed. Taking all these things into consideration automatically eliminated many plants and I could concentrate on a few that had some outside chance of doing something.

Of all those that I first tried only loosestrife had shown any favorable reaction. It had taken hold in several wet swampy places and new plants had begun to spring up around those first to bloom. That made loosestrife then an ideal plant for my purpose. It was rated as a good honey plant. It grew in wet land that was otherwise mostly useless. It showed very definite signs that it would spread, once established.

I should remark here that I rate a plant's ability to spread of itself very highly because that is the only way that any plant under our conditions can possibly become numerous enough to help the bees very much. A few clumps of some special plant that we grow in the flower bed may be interesting; the bees may work them heavily, yet they can never possibly have any effect on our beekeeping. Thousands of the plants must exist before they have any effect and even then it must be remembered that the effect may be minor, a case of keeping the bees busy rather than of adding much to the honey crop.

But anyway loosestrife was one good plant and is one I continue to sow at times whenever I find a suitable spot within reach of my bees. Another that I have found that is some good is wild thyme. This is not the garden variety but is listed in herb catalogues as "wild thyme" or "mother of thyme." This grows on very poor soil, seeds in readily and is supposed to be a good honey plant. I say, supposed to be good, because I personally do not care for thyme honey. I do not need to worry about getting thyme honey either for the little patches I have established can only furnish a bit for brood rearing after our regular flow is over.

Recently I have come up with another problem. I have bought some mountain land that is mostly rather open hard woods. Outside of some early spring pollen these woods offer little for the bees. Trying to find something that might grow in partial

Purple Loosestrife (LYTHRUM SALICARIA) is a free yielder of nectar, blooming in late summer and fall. This plant is adaptable to a wide range of conditions under cultivation. It is often found in flower gardens for the very pretty purple flowers on long spikes. It does best under moist or boggy conditions and in a few places on wet land has gone wild to cover fairly large areas. We have heard some tall stories about the amounts of surplus honey from this plant where sufficiently plentiful.
(Photo from Honey Plant Gardens, Atlantic, Iowa)

shade and offer something of a honeyflow has been a very interesting if not profitable venture. The fact that it must grow in some shade automatically eliminates most of the plants in my botany. The fact that I want it to be a good honey plant throws out some more. So far I have come up with two that might have some value. One is spurge and one is coral berry (Indian currant). Of course I am not satisfied and my search continues. What I actually want is a plant that probably does not exist. It should grow in shade. It should have great vigor and spread readily. It should offer the bees a long period of bloom with a good quality honey. Then, as long as I am wishing anyway, I might as well add that it should have fruit or nuts to attract wild game.

So the search for new honey plants goes on. One might well ask, "Why not leave nature alone as one finds it?" I can only answer that the good book in my house intimates that Adam and Eve started tinkering with nature in the Garden of Eden and as I suppose I am one of their descendants it seems part of my nature to keep the tinkering going.
Vermont

RECORD KEEPING FOR BEEKEEPERS

by C. R. Beck

When Income Tax time rolls around, a beekeeper, like all business men, wonders how he made out financially over the past year. This is difficult to determine unless one has kept accurate records pertaining to his business. Naturally one has to decide what records and bookkeeping system will best fit into his scheme of things because the matter of keeping records is time consuming and most beekeepers are unable to hire bookkeepers and accountants, but as the Government demands reasonable accuracy, records must be kept.

I have found for Income Tax purposes it is advisable to divide my bookkeeping into special divisions such as (1) Capital Expenditures. What did I spend for new equipment, repairs to the same, etc. This is important as one surely wants to set-up a depreciation schedule in order to save on Income Tax payments. In setting up a depreciation schedule I use ten years as the base and when this ten per cent is deducted from gross income it makes considerable difference in your net income (2) Regular Expenses. This is subdivided into (A) Supplies, Feed, Seed, etc. (B) Truck and Car Expense. How much did you use the family car in addition to your truck in the business. As this can be deducted it doesn't pay to overlook this item. (C) Trucking other than your own truck. (D) Taxes that you pay on the business such as personal, property, gasoline, etc. (E) Insurance such as fire, liability, compensation, etc. (F) Rent for additional buildings, beeyards, etc. (G) Utilities, and Office expense. (3) Replacement costs such as queens, packages, disease, wintering etc. (4) Labor Costs—this can make or break you. (5) Depreciation.

C. R. Beck is Guidance Director in the high school at Sioux Falls, South Dakota. He also has 175 colonies of bees. He says his beekeeping is one way to keep from growing old. He is also Chief Inspector for South Dakota and president of the State Association. Lower picture shows him in one of his guidance classes.

I also find incidental records if kept for several years are very revealing in making comparisons and plans so I try to keep (1) Yields per colony and for each beeyard (2) Returns on honey as separated from (3) Returns on by-products (4) Weather charts by months and years (5) Territory Maps.

If all of these records are accurately kept over the years you have an excellent base for the determination of net income which is the primary concern of most small and large commercial beekeepers. You also have a reasonably fair base to determine the worth of your business should you choose to sell.

Accurate records tell an accurate story of your business and provide helps for future planning.
South Dakota

THE FUTURE OF BEEKEEPING

by A. B. Kennerly

What's the future of beekeeping? Texas beekeepers have some pretty definite ideas on the subject, limited, its true perhaps by their own environment but their ideas give a peek at what's ahead.

"The future of beekeeping is closely tied to our water supplies," says A. W. Nations of Donna, Texas. "This is especially true in the Lower Rio Grande Valley where we depend upon irrigation water from Falcon Lake. If we have enough water to irrigate the citrus groves and farm lands, beekeeping should be as good or better in the next ten years than in the past ten years."

Producers in the Lower Valley are looking to citrus and legumes for their main flows of honey, and they believe the soil bank program should increase the legume acreage. They have been getting some honey from Hubam clover in the last 5 years, but prior to that time the crop produced little honey, probably due to cold weather during the blooming period.

"If Hubam clover blooms in April and May, we should get a flow," says Nations, "but there is some talk of poisoning Hubam for insect control. This would be disastrous to beekeepers," he points out. "The outlook for the future of beekeeping for the United States in general looks good to me. I do not expect to expand much, but I would encourage younger men to get into the business."

Another long time beekeeper, Whitman Coffey of Whitsett, is bothered about brush control. "There are several methods of brush control practiced in this area," he says, "with the worst for the beekeeper being the complete eradication with the land put into grass or farmed. This eliminates the beekeeper along with the brush."

A better method which Coffey recommends is to chop off the brush so that it will grow back for grazing. This method serves both the ranchman and the beekeeper since so much of the brush makes good forage plants that furnish feed for livestock.

In his section of Southwest Texas, water is the limiting factor also. When brush is cleared, the land cannot be successfully planted to legumes because of the scant moisture in most years, he believes.

Texas beekeepers hold definite but contrasting opinions regarding the future of migratory beekeeping. Up in the northeastern part of the State, J. R. Stroope prefers stationary locations. "My break-even point is 60 pounds of surplus honey per hive per year," Stroope observes. It is my opinion that I would go broke on no larger production than this and practicing migratory beekeeping such as moving from the Lower Valley to northern states." (Nations considers 120 pounds of surplus as good.)

Stroope sounds a word of caution about expecting too much from new varieties of clovers and legumes in research proving grounds. "If they prove superior to present varieties, they will no doubt replace the older legumes. But will they produce more honey than our present sources like vetch, Hubam clover, Madrid clover and Crimson clover? Or will they, like black medic, burr and button clovers, not produce enough nectar to attract bees?"

In addition to the above clovers from which Stroope now gets a satisfactory flow, he has been able to obtain good flows from cotton. "I think my chances are excellent for making satisfactory honey crops in the next few years," he predicts. "With early season control of cotton insects and the use of new insecticides, we haven't lost too many bees in this area. I also believe cooperation between beekeepers and vetch and clover growers can prevent damage to bees. The time of application is most important with insecticides recommended for vetch and clovers—late evening and very early morning applications kill fewer bees. Sprays kill fewer bees than dusts."

A firm believer in migratory beekeeping, G. C. Walker, Jr., of Pharr in the Lower Valley, observes, "Migratory beekeeping is the only way to make a real business of producing honey. Practically all beekeepers are migratory to the extent that they move colonies to their best locations. To be successful, the beekeeper must know his locations and follow a well planned program."

Walker believes that if a beekeeper can make a success in a permanent location, he can make more profit with a well planned moving program. He looks for locations where good flows are coming from clovers, vetch, alfalfa and cotton. "Then, there are minor flows from other sources in

Apiary of Henry Loehr (right) of Caldwell, Texas. Looking through the colonies with him is Claud Burgin, State Entomologist and Inspector.

early spring or late fall which put the bees in good shape for the main flows," he says. "These minor flows are well worth a move."

Touching on the honey market, T. E. Burleson of T. W. Burleson and Son, Waxahachie, says, "The honey market is in a much better position than it was 5 or 6 years ago. While the U. S. has a loan program, there has been very little honey going into this program for the last 2 years, and what honey has gone in has never, in the end, been finally purchased by the Government.

"This favorable situation has come about through a rather strong demand for export, and also, commercial markets are being developed among the bakery trade and similar industries that use dark honey. This has removed such honey from the retail shelves, leaving only the lighter, milder flavored honeys to be found in the stores. These milder honeys are preferred by consumers, a fact that has stimulated sales compared with the times when dark honey was displayed."

Claud Burgin, State Entomologist at Texas A&M College, takes a rather optimistic view of legume possibilities with the increase of irrigation facilities. "Irrigation is definitely coming into the picture," Burgin observes, "and beekeeping should prosper with additional sources of honeyflows.

Counting the applications for moving bees, Burgin states there are fewer resident beekeepers with a sharp increase in numbers of migratory beekeepers. "Even those staying in one locality move about the region to take advantage of honeyflows," he observes.

Another trend which Burgin has observed through his study of inspection records is that units are growing larger. "Large operators are buying up small operators, and there are fewer hobbyists," he states. "But rains will bring back the beginners," he predicts. "Let one catch a swarm of bees with flowers in bloom and we have another beekeeper."

The future of pollination services depends on the possibility of selling area services rather than to individual farmers, T. E. Burleson believes. Neighbors are difficult to sell if they believe one farmer will buy the service and they will receive some of the benefits. The lone farmer also feels he is not justified in paying for services from which neighbors derive benefit without paying anything.

Burleson also sees something of a future in production of royal jelly. "It seems this may prove to be a rather profitable field, especially for the small, commercial type beekeeper. This, however, is still in its infancy stage," he observes.

Specialty sales of honey by mail is not faring so well. "We do not ship much honey," says W. C. Winkler of Moody who sells gift packages of pecans by mail, and a small amount of honey. "Honey is produced all over the U. S. which gives us heavy competition, and shipping charges have increased to the point that shipping small quantities is not profitable," he says. "Most of our honey is sold in our local sales room in 1 lb., 2½ lb., 5 lb. and 10 lb. containers, either comb or extracted."

What is the future of beekeeping? It seems to lie in the hands of those who watch the trends and make their plans accordingly.

Texas

It Costs You Not To Belong

by F. Q. Bunch

For a number of years the writer rather haphazardly attended bee meetings, local and state gatherings, and generally came away from these meetings with some ideas which could be used to good advantage in our work with the bees or in our extracting and processing plant. As is generally the case, our local organization provided top-notch speakers who knew what they were talking about, men and women who were successful in their own bee yards and who sacrificed a lot in time and money to attend these meetings. These meetings were never well attended and it seemed to me that the officers of this organization were not giving the meetings the proper publicity.

Time went on and things seemed to be drifting along about the same as usual when, out of the blue, I was elected as secretary of this organization. I went home from that meeting with my head in the clouds with plans for a number of big changes in procedure. By contacting the State Apiary Service I obtained a list of every registered beekeeper within the area where our Association operated. Before our next meeting was scheduled, reading notices were mailed to every newspaper in the area and about ten days before the

Mrs. Helen Bunch of Helen's Apiaries with some of the State Fair and National Honey Show awards for honey and honey cooking. She also has a regular honey sales route she serves weekly with over 100 stores. Honey out of regular stock won second place at the 1956 National.

meeting each beekeeper was sent an individual notice, explaining the program which included speakers, prizes and surprises.

I came away from that meeting sadder and wiser. We had obtained many attendance prizes from supply dealers, queen breeders, and others and after adding up the cost of mailing out the notices and the value of the prizes, we found that it cost us something over two dollars for each one in attendance at this meeting. This was exclusive of anything for the time of preparing a program or the time and travel expense of the speakers.

Some time has elapsed since that meeting and we have had picnics, business meetings, and more meetings, and find that the same group of faithfuls still in attendance and the majority still conspicuous by their absence. It seems that the beekeeper who shuns his own organization meetings, is the one who does not know the market value of his honey and generally bottles and sells his crop at less than market value. Underselling does much harm to the entire industry and benefits no one. We have for years bottled honey and sold to stores at a price which is based on the market value of bulk honey, the present price of glass containers, the labor cost of processing this honey, and a fair profit for time and investment. We put out a quality product which has won recognition by our customers and they expect to pay more than a "bargain price" for our honey. Honey of off flavored types has no place as table honey and should be disposed of for commercial uses. The beekeeper who fails to attend the meetings often does not know what the market price of honey should be and generally sells his crop by cutting price. Often it is sold for less than its costs to produce it.

Present day business is conducted in a streamlined manner and profitable beekeeping should be operated in an intelligent manner. There are countless time and labor saving tricks to our procedure and a stack of pallets and a nose truck will permit a medium sized operator to do much work in less time. Tipping over the colony to permit inspection for disease and for checking on swarming is another back saver and will permit the beekeeper to operate more colonies in the same amount of time, and therefore increase his income and save his back at the same time.

A loading dock at the honey house with the load of honey brought in on pallets will permit the beekeeper to unload a truck load of honey with a nose truck in the matter of minutes with no lifting of heavy supers. By constructing these pallets with a "door opening" we shove in a dose of cyanogas to kill off any stray bees which were left in the supers when we removed them from the hives, and at the same time this will mothproof the supers if they are treated again in about ten days. This is done without any lifting.

Nosema, perhaps costs the beekeeper more than any other disease, and while it is not so apparent it does take a heavy toll of the profit out of beekeeping. Fumidil-B. when properly fed to the diseased colonies will do much to control this disease.

Starline queens, at the head of disease-free, powerful colonies will add to the income of the intelligent beekeeper. We have used these queens shortly after they were offered to the public and are very pleased with their performance.

Our honey is extracted, clarified, run into a heat-controlled settling tank, and bottled in one operation. The result, much time saved, with the honey heated just once, and a lighter colored product. Where the common practice is followed the honey is run into containers, allowed to granulate and some time later it would be heated to reliquefy it, and we all know that each time honey is subjected to heat it darkens somewhat. In this area when honey is fully granulated it takes several hours of heating to put it back into liquid state. It always darkens it somewhat, and sometimes just enough to drop it into a lower grade on the Pfund grader.

Packing bees in the northern states is considered a must and at best it is a time-consuming job. By using chaff trays with screened bottoms, inner covers with a permanent top entrance, black jack wrapping paper cut into correct length, a stapling machine to fasten the paper, one can pack and wrap more colonies in one hour than we formerly used to wrap in a day when using old style packing cases, or the old style "helter skelter" wrap.

By now the reader should start to wonder how far I am going to drift from the subject of Beekeepers Organizations and I could go on and on but I want to save some of it for the bee meetings. Most all of the ideas which I have touched briefly have been presented at some previous bee meeting, or brought to my attention by some good successful beekeeper whom I have met at some bee meeting.

Before getting this first-hand information as a part of a beekeeping organization I never realized the amount of time which is required to keep them operating smoothly and I more fully appreciate the fine work that is being done by our state and national units of our organization.

As a final word let me urge every beekeeper to attend the local bee meetings, learn many labor saving hints, money making ideas, and above all give your local officers courage to carry on their thankless job for another year's service so that you may have the opportunity to benefit by their efforts.

Minnesota

Our Cover Picture

Donnie Lee Culberson at the age of three. His father's story on page 308, "A Four Year Experience," tells about how this family got into beekeeping. The Culbersons live at High Shoals, North Carolina. Donnie was dressed up by his father for the picture and his expression seems to indicate that he is not quite sure that he likes it. His father titles the picture "In Dad's Footsteps." He is always wanting to work with the bees and has been stung several times, yet doesn't seem to be afraid of them. He opens the cabinet where the honey is stored and says "I like honey" and along with the rest of the family he eats it every day.

The Sideline Beekeeper

Edward H. Boguski, Green Bay, Wisconsin, furnished this department picture showing his exhibit in the Green Bay public schools. Mr. Boguski teaches metal and wood working in the Department of Industrial Arts, Franklin Junior High School. The exhibit was on teachers' hobbies and this exhibit of live honey bees and equipment was enthusiastically received. The bees were on exhibit in both the Franklin and West High Schools. It is estimated that three thousand students viewed them. With projects like this the Sideliner boosts the industry and builds a sense of satisfaction in himself.

A Dual-Purpose Steam Boiler For Uncapping

by Robert H. Rusher

For do-it-yourselfers and gadgeteers, here's a dual-purpose steam boiler that can be used every week, if not every day of the year.

This steam boiler is really a pressure cooker, with the jiggle-type gauge, four-quart capacity, see figure 6. If you already own such a cooker, you can adapt it for a very nominal cost. All you need is an extra gauge, a carburetor return spring, a piece of scrap metal (I suggest an old license plate for proper thickness), a short length of copper tubing (one-quarter inch outside diameter), and you are ready to go.

Here are the steps:

1. Scribe a line on the pressure-gauge, as shown in figure 1, put the gauge in a vise and cut off the indicated portion with a hacksaw.

2. Turn the large portion in the vise so the newly exposed surface is up and level. Mark the center and start it with a prick-punch.

3. Now drill down with a one-quarter inch drill. *Caution:* Be sure you do not drill deep enough to disturb the shoulder on the bottom of the hole that fits the stem on the cooker, otherwise you will lose steam due to the gauge not seating properly. Stop drilling as soon as you have sufficient depth to make a clean, symmetrical hole, of the bore of the recess above the shoulder (see "A" in figure 1).

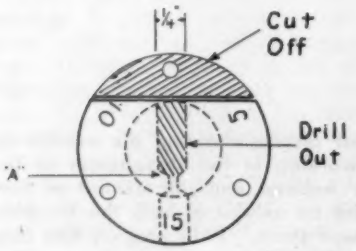


Fig. 1

Follow the explanation of these six figures in the article.

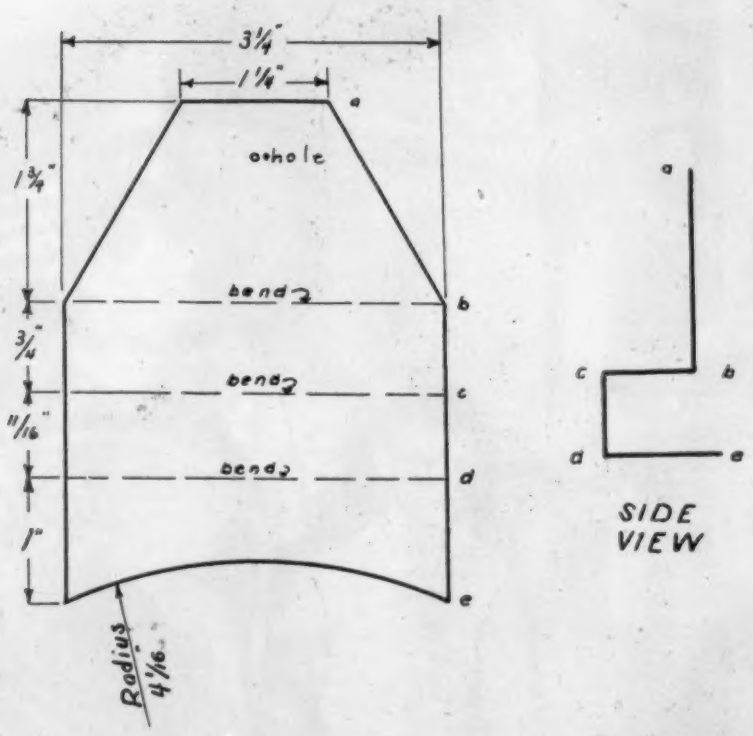


Fig. 2

4. Now cut a piece of tubing about two and three-quarters inches long. Sweat on a ring (obtainable from a plumber's supply) at one end. This will prevent your hose from slipping off when you clamp below the ring. Put about a fifteen to twenty-degree bend in this tube. This will permit your hose to bend easily in the direction of your uncapping table, but will prevent the hose from sagging enough to rest on the cooker, or get close enough to the heat below to be damaged.

5. I soldered my tube into the drilled hole in the gauge. It has been in operation for three or four seasons, but is not entirely satisfactory, as it leaks a little and it is difficult to get solder to flux on the stainless steel gauge. I would recommend having it brazed on (see figure 3).

6. Now cut and bend the metal piece in figure 2. I used a couple of pieces of thin bar iron in the vise, such that they protrude beyond the jaws. This prevents the bent portion from interfering with the jaws, and makes it easy to get a good square bend. This piece must fit snugly over the flange of the cooker. (See figures 5 and 6).

7. Drill a hole in the top of the metal and thread a piece of wire through it.

8. Wrap another longer piece of wire a couple of turns around the copper tube and couple in the carburetor return spring (see figure 4).

9. Attach your steam uncapping knife hose, with the clamp supplied. Test for clogging by blowing through the system. (see figure 3).

10. The longer end of the wire merely wraps around the handle of the cooker and under itself. By adjusting the tension on this wire, against the spring-tension from the opposite side, you can get the gauge to seat evenly.

11. Place on oil, gas, or electric heat, and you are ready to take divots in those honey-laden combs.

A few "helpful household hints:"

You have no worry about exceeding safe pressure, as long as your outlet isn't plugged, and then the worst you can do is to blow out the emer-

Figure 3

Figure 4

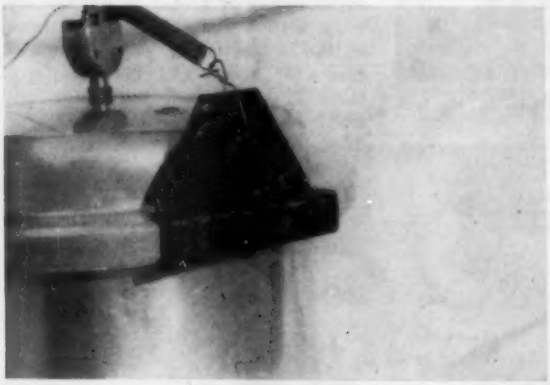


Figure 5

Figure 6

gency plug in the lid of the cooker.

If the "idol of your life" is the alternate user of the cooker, put a few coffee grounds in the water. This will prevent the usual blackening that accompanies boiling water alone in aluminum.

Do not fill the cooker more than three-quarters full, otherwise boiling may cause water instead of steam to enter the tube.

You can tell, with a little practice, when it needs water by "heft" and by the amount of "slosh" when the cooker is shaken from side to side. Check every two to three hours, just to be sure. Remove from heat and remove gauge before removing cover.

Use only enough heat to maintain a steady flow of steam, under working conditions.

I also recommend that you have your own lid gasket, as extended use will render the gasket unsatisfactory for use as an actual pressure cooker, because the pressure generated in cooking is higher than when used as a steam boiler. Therefore, although the gasket will be satisfactory for use with the boiler, it will not hold pressure for cooking, after aging.

Massachusetts

●

A CLASS IN BEEKEEPING

Here's where our future commercial beekeepers often come from. Picture was taken by J. R. Allred, News and Radio Service, Colorado A & M College and it shows the 1956 beekeeping class, largest ever, 15 students. The class gives students a general knowledge, especially for those in county agent work, vocational agricultural education, pesticide application and related fields. Several bought bees; some went into beekeeping as a sideline. The teacher was Wm. T. Wilson, A&M College, second row from top and second from left.

Donnie Culberson Sr., High Shoals, North Carolina, among the colonies in his back yard. His son, Donnie Lee Culberson, is on our cover this month. Cute?

A FOUR YEAR EXPERIENCE

by Donnie Culberson

I started beekeeping four years ago when by brother-in-law moved away and brought two colonies to my house for me to keep. They were in box hives without supers and I was sure afraid of them as I had never seen anyone manage bees. So the first year I only visited them twice and was stung both times. They both swarmed.

The second year I visited a friend and he was taking the honey from his bees. When I saw that honey I decided I would find out all I could about bees. This friend didn't know much. He kept the bees in box hives and "robbed" them once a year.

I ordered two hives and four supers and two queens and transferred my bees that very summer. I had to feed them to provide winter stores as the transfer was made after the honey-flow.

Then I decided to go to the public library for books and borrowed the ABC book and the Hive and the Honey Bee. They were so interesting I could hardly lay them down. Then I subscribed to the magazines and enjoyed them.

The third year began with my two colonies and I ordered two three-pound packages and installed them March 15th in 1955. Then came a hard freeze and I thought surely everything had been killed and there would be no honey. Nevertheless I bought two more colonies advertised in the paper, making a total of six.

1955 turned out to be a good year. My two original colonies made two shallow supers of surplus honey each in addition to a deep super left on for winter stores. My two package colonies made two deep supers each and I left one on them for a food chamber. The two new colonies did just as well. All of the surplus was sourwood, the prettiest white honey I had ever seen. When I sold it the folks here had never seen water white honey and they thought I was trying to sell them sugar syrup.

I found that some of the beekeepers here removed honey before the last of May before the sourwood starts and they were leaving the sourwood on for winter stores because they never looked in their hives again that year.

I ended with ten colonies in 1955 and in the spring of 1956 decided to requeen six of them using the introducing cage you press into the wax around emerging bees with the queen loose in the cage. Seven days later I looked to see if the bees had released the queens and saw to my surprise that the bees had gnawed away the wax under the cages in five colonies and balled and killed the queens. I ordered more queens but by the time they came I could not get the colonies built up enough to make much surplus. So I united two with weak ones and that way received a fair surplus out of the remaining eight. I sold all my extracted honey at $1.00 a quart and my shallow frames of comb honey at $1.50 each. I wish I had been able to produce a ton or more as I had many people who would take that much among them. Even the grocers wanted it.

Now I use the double screen method of requeening. Just requeened four of them that way. They were wintered in two hive bodies and each of the two bodies had from five to seven combs of brood. I put the top body with the old queen and brood on the bottom board. Then take two combs of brood and bees and put them in the second body with the new queen in her cage between them. The divided (double) screen is between the two bodies. The entrance of the top body is toward the back.

I like this method of requeening better than any I have tried. I let the old queen lay in the bottom until the new one above is well established. Then pull the screen and leave only the new queen.

North Carolina

How I Catch the Field Mouse

Here is how I catch the deer mouse (sometimes called the field mouse). They have the habit of hoarding like the gopher, ground squirrel and chipmunk. I use a small wood mouse trap. Put a good, full pumpkin seed on the bait hook of the trigger, then place six to eight good seeds on the trap around and under the pan. This never fails. The mouse gets interested in carrying away the loose seeds, always trying to take the one on the trigger last. It always gets them. I have been troubled with these mice at times when they have either come in through the entrance or worked up into the straw insulation and entered the inner cover opening when it is not screened.

Leonard E. Jackson
Michigan

He's Our Uncle Sam

"Uncle Sam is the largest landowner, the largest insurer and lender, the largest landlord and tenant, the largest warehouse operator, shipowner, truckfleet operator, and manufacturer and user of red tape in the world."

H. C. McClellan

Expanding Your Hobbies Into A Business

by Kenneth Buckenroth

I became interested in bees when I helped my father years ago in the days of dishpan beating and my father used to think the more swarms a colony of bees produced the better it was. He kept a few bees for the pollination of our orchard and for some honey for home use.

As I grew up and became interested in girls I lost interest in the bees. After I married and had two small sons I was at a public sale one day where there were a dozen colonies of bees for sale. I bought them quite reasonably and have had bees ever since. That was thirty years ago. The children in the picture I sent you are now grown and the baby is getting married in June.

At the time I got my first bees I was renting and moving around a lot, working here and there, but I have owned and lived in my present place for nineteen years, with my wife and five sons and one daughter and we have had a lot of living here.

About eleven years ago my wife started raising English bulldogs. It has proved so interesting and profitable that it has grown into quite a hobby. After a few years we were asked why we didn't show our dogs, so one September we entered our 14 month old stud dog, we had just raised, in a Bulldog Specialty Show. There were about 72 dogs in that show, two or three of them imported from England, but we won the show and came home with "show" in our blood. We were really show happy for quite a while.

The dogs have meant making our country home modern, paid for vacations and many trips. And we have met a lot of nice people from all over these United States, dog people, and dog people are wonderful folks.

Then the kids wanted some calves for 4-H. We always did keep a Jersey cow for our milk, cream and butter these last twenty five years. Now we are milking seven Jersey cows and they will soon all be registered. They are doing extra good. The children are showing them at the fairs in 4-H and have come home with blue ribbons. We have enjoyed every bit of it.

Hobby Acres Farm with young sons and a swarm of bees. About 100 colonies in this project.

Daughter and show heifer in 4-H project.

Our Champion stud dog, doing a job as baby sitter. If all the girls had a guard like him they would never need to be afraid of being alone.

Here is the Champion Stud receiving the Best in Show trophy with the author handling him.

We live on a good highway leading to a large lake. So one day, after reading quite a bit about ponds and raising minnows, I decided that we could raise some. I made some ponds, got some breeding stock from the State Conservation Department, and now I am selling minnows and meeting and talking with fishermen.

With a hundred colonies of bees, English bulldogs, Jersey cows and minnows, we have a good living, close to nature, where it is good for the soul. We even have a pair of geese, a pair of tame rabbits, and three sheep to help keep the weeds down around the minnow ponds, and a swimming hole out back. We raise our own vegetables and small fruit.

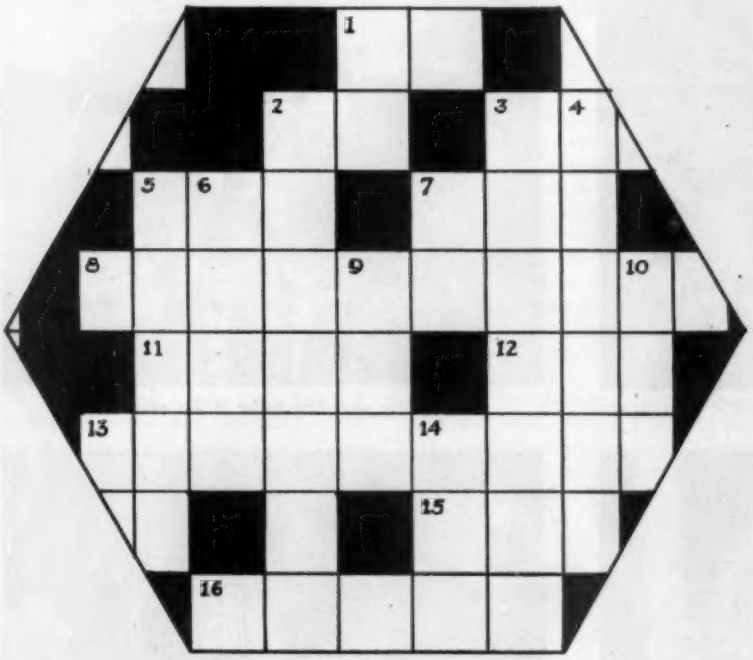
Before the war we had a roadside market, selling vegetables, berries, home grown melons and honey. We became well known for our home grown melons. We met all kinds of people. Some that liked to pick up a perfectly good muskmelon and punch and punch until it was soft. Then they tell you the melon is no good. Ha! Ha! But if we did not have people like that we would not appreciate the good ones and life wouldn't be so worth living.

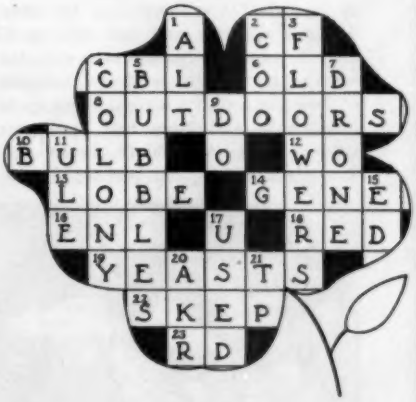
Lately my wife has become very much interested in royal jelly. She collects all the information she can about it. She also uses a lot of honey on the table and in canning and preserving.

Ohio

PAT'S PUZZLER — The Hexagon

Well! Pat pulled a boo-boo by leaving nine out of the down list although she had it in the check diagram (do). Most contestants noted it. One put in "do" and several other possibles. There were 47 answers from 31 states. Winners retire. Thanks. If you do not get an answer when your solution is right it means someone else got in ahead of you by postmark time. There were two in Nebraska that mailed answers the same day and hour! One case of machine cancellation with no time record. Try again and good luck.





ACROSS

1. Exclamation
2. Pronoun
3. Versus (Abbr.)
5. Definite article
7. _____brood, a disease
8. Heather honey shows this property
11. Street
12. Upon (Law)
13. The queen is noted for this long life or _____
15. It is
16. A skunk or an ant is an_____ of the bee

DOWN

1. Old form of "you"
2. This six sided shape
3. Short form of university
4. A swarm clusters until these bees return
5. Fling
6. The hydrogen ion (Chem.)
7. Street (Abbr.)
9. A dignified poem
10. Pull apart
14. Energy

Winners for July

Alabama—Adolphus Jones, Bay Minette
California—Avery Yakupzack, Modesto
Colorado—G. A. Pauli, Pueblo
Connecticut—Raymond W. Herrick, Jr., Baltic
Florida—Mrs. Kathryn Lobeck, Mount Dora
Illinois—Marigene R. Hutton, Gifford
Indiana—Velber Wilson, New Ross
Iowa—Mrs. Joseph Hermann, Manchester
Manitoba—M. P. Fedorchuck, Ethelbert
Maryland—F. H. Handte, Hyattsville
Massachusetts—Dan Hardesty, Maynard
Michigan—Margaret F. Seidelman, Ionia
Missouri—Charles C. Wofford, Senath
Montana—M. E. Anderson, Miles City
Nebraska—Mrs. Rex Simon, Burwell
Donald W. Hanson, Wahoo
New York—W. R. Platt, Mt. Kisco
North Dakota—Bryan Sperry, Kindred
Ohio—Joe Salimbene, Dayton
Oklahoma—Leroy Vickers, Enid
Ontario—Norman J. Hill, Picton
Tennessee—William B. Stroop, Memphis
Texas—Roy B. Plaisance, Houston
Virginia—Rev. W. J. Moll, Elkton
Washington—Albert Dotson, Oakville
Wisconsin—Eugene Makovec, Colby

The Beginner and His Bees

This picture of the scent gland of the honey bee came from Harald Doering of Kirchseeon, Spannleitenberg, Germany. When the worker bee extends the tip of the abdomen and bends it downward it exposes this wide, pale band, normally concealed, beneath which are the scent glands the odor from which is a means of communication between the bees of the colony. Perhaps they say, "This is our home. Come in."

The Beginner and His Bees

QUEEN REARING

by W. W. Clarke, Jr.

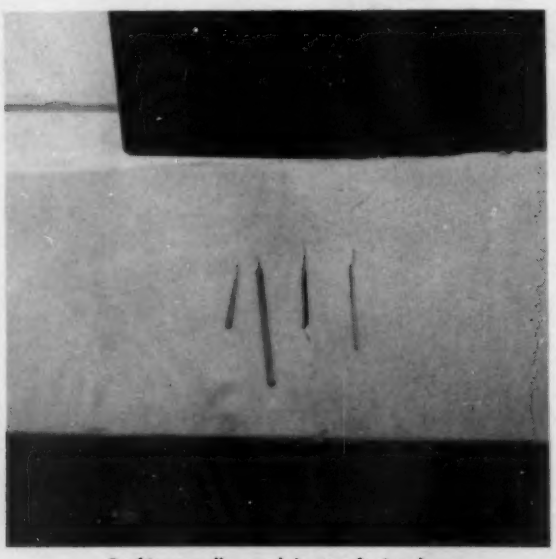
Most readers now know that Bill Clarke is Extension Apiarist at Pennsylvania State University. If you attend the meeting of the Eastern Apicultural Society there August 23rd and 24th, you'll see Bill in action, even to conducting a Hoe Down, as dance chairman, on Friday that will "shiver your timbers."

All livestock men are interested in improving their stock by use of a breeding program. So it is with beekeepers: colonies are requeened when production drops, or the brood pattern becomes irregular, or too many bees sting the proprietor. The new queen may be obtained from a commercial apiary of course, but the small beekeeper or beginner may take the opportunity to bring all his colonies to the level of his best ones by raising his own queens.

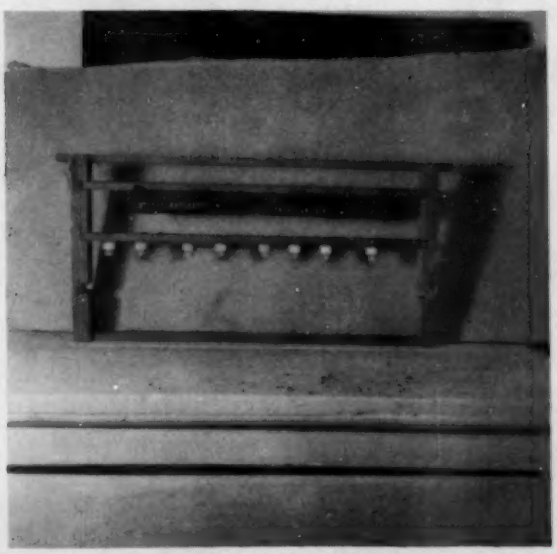
There are many ways to rear queens all of which may be used by the small beekeeper. All the methods are based on the breeder queen which should be selected to give the desired characteristics; such as gentleness, honey production, small tendency to swarm, disease resistance, and color. The job of selecting queens is easier with a large number of colonies, but in any case the best available queen should be chosen.

Bees build queen cells under three conditions: swarming, supersedure, or queenlessness. It is possible for the small beekeeper to use any of these three conditions to collect his cells. Swarm cells can make good queen cells if conditions are right; and usually the colony will build a large number which may be moved to queenless colonies, or to small colonies called nucs, to emerge, mate, and start to lay eggs. The one bad feature of using swarm cells is the possibility of perpetuating the swarming characteristic.

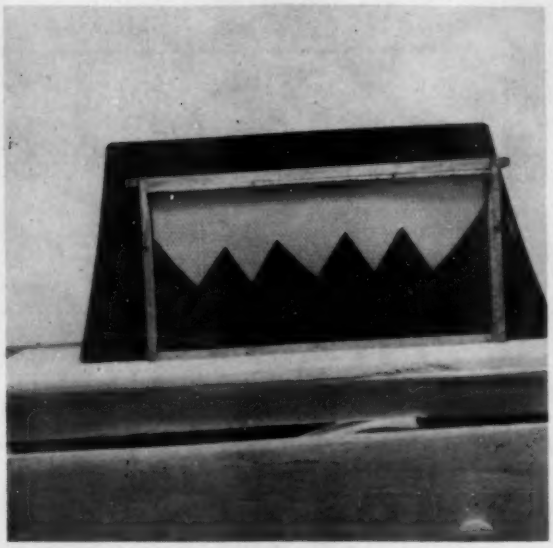
Supersedure cells may also be used for rearing queens but this condition is rather undependable. All colonies will either swarm or supersede their queens unless they are requeened.



Grafting needles used in transferring larvae



Top, comb cut out for the Alley system. On bottom cups for the Doolittle system.



Comb foundation cut for the Miller system.

Eight frame hive divided into three sections for three queen mating nucs.

Queenlessness is used most frequently for rearing queen cells, especially where large numbers of cells or queens are needed at a given time. A colony may be made queenless by dividing the brood nest with a queen excluder; by removing the queen; or by shaking the bees into a hive or nucleus. A frame of eggs or larvae of the right age from the selected colony will produce queens with the desired traits.

Besides queenlessness, the proper conditions which are needed are pollen and plenty of food.

In the early days, queens were reared by removing the queen and allowing the bees to build cells; more recently several methods have been developed to produce large numbers of queens of a desired strain. Two of the most common systems are the Doolittle system, used by most commercial queen breeders; and the Miller system which could be used by almost anyone with little or no extra equipment or experience.

With the Doolittle system a young larvae one to two days old is transferred into prepared queen cups by the use of a very small spoon or needle. This transferring is called grafting. Usually 10 to 15 cups are placed on a bar; after the grafting is done, they are set in a queenless colony for a period of nine to ten days; after this time, the queen cells are placed in queenless colonies or nucs to allow the cells to "hatch" or emerge. The new queens will usually mate and begin to lay within ten days if the weather permits flight. The beekeeper may then watch the action of these queens and select the best to requeen his bees.

The Miller method makes use of foundation which may be set in place as strips which are tapered or a half sheet cut to points at several places. This is placed in the breeder colony between two frames of brood. It is wise to remove all other brood. In about a week the bees will have drawn out the foundation and the new comb will contain brood with the youngest near the edge. This comb is then trimmed away with a sharp knife to leave the young larvae, one to two days old, in worker cells near the edge. This trimmed comb is then placed in the cell-building queenless colony. The comb must be handled with care as it is very tender. The queenless colony should have queen cells ready to remove in ten days. These cells are then given the same treatment as in the Doolittle system.

Another method, smiliar to this system in that the queen cells are built on the original worker cells, is the Alley or the Jay Smith method. The comb containing young larvae is cut into strips to allow one row of cells, the back side is partly cut away and is waxed to the bottom edge of a comb. Every second and third larvae is destroyed before it is placed in the cell-building colony in order to give more space between the queen cells. This frame is then given to the cell-building colony.

After the queen cells are built, they are placed in queenless colonies called nucs, which are usually made up of three or four frames with some brood and a queen. Once the small colony is established the old queen is removed and a queen cell is placed in the small colony. Here the cell emerges and is allowed to mate. The beekeeper can leave the newly mated queen in this nuc to see just how she lays. These nucs may be made by dividing a standard hive into three sections which are completely isolated from each other. If there is any connection, one queen will be lost. The entrances to the individual colonies should be on different sides of the hive. The advantage of using standard frames and equipment is that everything is interchangeable. Thus the mated queen may be moved directly from the nuc to the colony which needs requeening without the problem of introduction, since a colony will almost always accept a laying queen.

Buds and Fruits of Eucalypts

Above is title of a 40 page foolscap bulletin of the Commonwealth of Australia, Forestry and Timber Bureau. It lists and illustrates some 600 buds and fruits of the Eucalypts, principal source of honey from that commonwealth. The drawings appear precise and the book should be an addition to any honey plant library. We assume that copies may be obtained by addressing the Director General of the Commonwealth at Canberra, Australia, with remittance of $1.50.

THE GREEK BEE

by Panagiotis Georgandas*

The absolute lack in Greece of a scientific institution dedicated to the study of bee culture is an unfortunate gap, the effects of which are manifested at once to every technician occupying himself with this worthy subject, and to anyone who would seriously occupy himself with the Greek bee and its culture.

This gap becomes still more evident by the realization that scientists of other countries up to now could not make a systematic study of Greek beekeeping and especially the Greek bee.

The recent conscientious attempt of Brother Adam of Buckfast Abbey, England, to study the Greek bee is certainly a noteworthy exception to this. During a trip which he made in 1952, passing through the Near East, the Balkans and our country as well, he collected samples of Greek bees which he sent to the Rothamsted Experimental Station for biometrical observation. The report of his trip is published in *Bee World* 35(12): 233-245, 1954. Although the report of this famous man cannot be regarded as a full review, many thanks are due him, if only for the fact that the Greek bee has been brought for the first time to the attention of others.

The following facts about the Greek bee are based on our personal observations made for 25 years in our own apiaries of Macedonia and Attica.

*Director of Agriculture, Yanitza, Macedonia, Greece.

The Greek bee, at least the one in Macedonia and Central Greece, in our opinion, belongs to the race of the Balkan bee, probably being evolved into a special variety, but constantly mixing its blood with all the races from Turkish Thrace, Bulgaria, Yugoslavia and even Albania. Consequently, we can't exclude that in its blood there is also blood of the Italian race, and that of the black races of central and northern Europe.

Furthermore, we cannot insist that the blood of the grey bees of the Caucasus, as has been described by the Russian researcher, Michailov, is missing from that of the Greek bee. From all this, we should at least by inference admit that the continental Greek bee is in constant crossing and evolution and, therefore, not bearing the yoke of homozygosity. Thus it can afford a fertile ground to researchers in bee breeding for the selection and development of strains with desirable characteristics for varying conditions of bee culture. This is a subject that could well occupy even the most perfectly organized Greek Bee Culture Institute of the future, as one of its chief and primary purposes. It should be, as I think, the breeding of the ideal bee for both stationary and migratory beekeeping.

External Structure of the Greek Bee

Today, the Greek bees continue to be unlike each other in color just as Aristotle described them in writing a thousand years ago. Even in queens the color varies from clear and intensive black to a light yellow color. Consequently, the opinion which some foreigners have is not accurate —that one cannot find in Greece queens with light yellow color which, as we know, are sought by many foreign queen breeders.

I assure you that I have always had in my apiaries queens with the brightest colors and exceptional in form and size, really magnificent mothers with exceptional egg-laying capacity and whose progeny had a wonderful ability to collect nectar. However, as these queens grew older, their color became darker until finally they lost their golden yellow color.

Between the absolutely dark and the light yellow color, one can find in Greece, queens with all the intermediate shades, certifying to the fact that there is an obvious mixing of strains belonging to the other sex. The drones nevertheless are almost absolutely uniform in color.

Waiting Period up to Egg Laying

From observations I have made for 25 years on thousands of queens in Macedonia and Attica, the Greek queens begin their egg laying according to the conditions of the season and flowering between 6 and 22 days inclusive, from the day of their emergence. But the occurrence of egg laying in 6 days I have observed only once, which was in a beehive situated right in the center

A migratory apiary in Halcidiki, Macedonia, belonging to the author.

Beehives with removable topbars only. From a picture shown at the Vienna Congress.

of the city of Athens. This queen began to lay fertilized eggs when the flowers of *Eucalyptus globulus* began to bloom, which is an exceptional nectar and pollen source.

On almost thirty occasions I have observed egg laying between 7 and 9 days after emergence. These queens mostly were reared in Attica. They emerged and began their egg laying when the Eucalyptus began to bloom, or thyme *(Thymus capitatus Hobem)*, or plants like white clover *(Trifolium repens* L.).

Notably more queens begin egg laying from the 10th to the 12th day but this was not true of my queens of Macedonia and Attica which emerged under conditions favorable for pollen and nectar collection. Even more queens began egg laying from the 13th to the 14th day, and even a greater number began egg laying from the 15th to the 18th and even to the 20th day.

The period prior to egg laying and its beginning, except for the circumstances of weather and flower blooming, is also influenced by the largeness of the cluster, its position in the beehive, the proportion of young and old workers, the existence of enemies such as wasps and birds, and meteorological factors in general.

Moreover, I have observed that the greatest safety and fertilization of queens occur in my hives in Athens, whereas the least takes place where wild swallows are nesting their young, and where the bird, *Merops superciliosus*, occurs, as well as the big wasps.

The above time delays, until egg laying takes place, are mentioned on the condition that the colonies with the queens under fertilization are not disturbed by speedy inspection. In general, unnecessary interference on behalf of the beekeeper not only results in more losses of queens, but also surely provokes the delay of their egg laying.

I also have noticed that, under conditions of shortage of nectar and especially of pollen, it is absolutely impossible for queens to begin egg laying earlier than the 21st or up to the 23d day of their lives. Queens which fail to lay eggs on the 23d day from their emergence, as I have observed on numerous occasions, either become totally sterile or become drone layers.

The Fertility of Greek Queens

I can assure you that the Greek mother bees can be regarded as the most fertile ones. There have been cases where I have been able to calculate with certain safety, that queens under ideal conditions approached, reached, and even exceeded somehow the number of 5,000 eggs in a 24-hour day.

On the other hand, I am inclined to believe that the light colored queens produce workers with a greater capacity for honey storage, and can accomplish quicker than others—almost in a flash—the development and extension of their brood. Furthermore, this is accomplished in greater proportion to the number of worker bees in the colony. On the other hand, under certain unfavorable circumstances, they can abruptly limit their brood, even to none at all.

I have also observed that queens with largest abdomens are to a great extent those which have bright, light colors, or those in between with bright and light colored bands on their abdomens.

A young queen of good quality can lay so many eggs that on the eve of the main flowering season, i.e. toward the last of April until the end of May, the bees of the colony will cover 25 to 30 standard frames. Its brood is compact and perfect in every respect and can occupy 15 standard frames. Such a queen is capable of doing this through two productive seasons without manifesting signs of being superseded or the colony to swarm. Such a queen can maintain its large brood nest during all the months of the flying period, and even during July, August, and September if nectar and pollen are freely available.

Inclination to Swarm

The Greek bee has little inclination to swarm and this inclination lessens as time passes.

I remember when I installed my migratory apiary in Macedonia 26 years ago, my strongest colonies under favorable honeyflow conditions, raised up to 150 queen cells. Today the largest number of such cells seldom reaches 50, and in most cases the colonies only build queen cells to supersede their failing queens rather than for swarming. In my hives in Attica, I always count fewer queen cells.

The Gentleness of the Greek Bee

Throughout the world, it is not easy to find bees more gentle than the Greek bees, but the gentlest of all are undoubtedly those from Macedonia.

In 1951, I repeatedly inspected my 225 beehives in Macedonia without using a bee veil. Under unfavorable weather and nectar conditions, the same colonies are uneasy and not as gentle, but never in such a way as to seriously hinder their manipulation.

During the two seasons of the year, which coincide with the flowering of Asphodel *(Asphodelus microcopous VIV)* and Vrouvas *(Sinapis alba L.)*, my bees of Attica are more gentle than those of Macedonia. But their temper varies with weather conditions and the floral conditions of the district, as from the end of February until the 20th of May. During these days, especially the strongest colonies, and of these, those with young queens, become aggressive to such an extent that they may cause serious trouble during manipulation. However, these same bees, during the flowering season of thyme when nectar is gathered freely, are transfigured to such an extent that they resemble the Macedonian bees in gentleness. They are a real surprise to anyone inspecting them during the blooming of Asphodel and especially Vrouvas.

There come seasons when my Macedonia bees change behavior to a reasonable degree, as for instance when they are moved every August and September to the penninsula of Casandra for about 7 to 8 months for their feeding on pine. Here the large amounts of pollen give, in my opinion, the disposition and capacity of the bees to make more attacks.

On another hand, I have repeatedly observed that an aggressive colony becomes more gentle in the second year of the age of its queen, and still more gentle in the third year.

Finally, the Greek bee is constantly becoming more gentle in character. I remember the most populous and most aggressive colony of my apiary in Macedonia in 1953. It had a new queen and her colony reached 80 to 100 thousand bees. I systematically avoided its inspection because I was constantly being attacked by at least fifty stings. Today, the inspection of such a colony doesn't create any problem to me.

Capacity for Honey Production

The capacity of the Greek bee for nectar collecting is very great. Just as the queens, almost like a flash of lightning, are able to expand their brood and also limit it with equal speed, so the workers can, when conditions dictate it, concentrate themselves on the tasks of honey production with the same wonderful speed and ability. It often happens that they collect in a day such a quantity

(To Page 318)

IT'S WORTH A "STITCH IN TIME"

Nosema Disease

by Dr. Howard E. Cmejla

Abbott Laboratories, North Chicago, Illinois

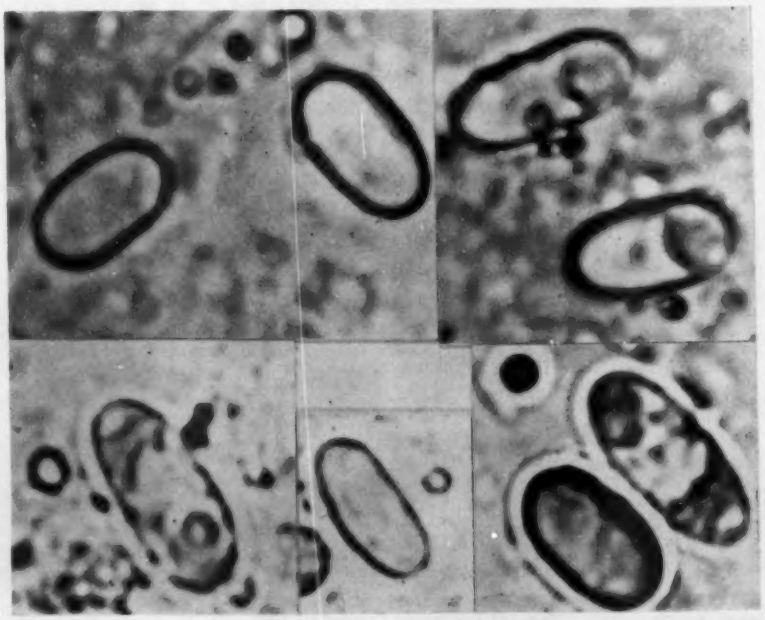
The theme of the recent California meeting of both the American Beekeeping Federation and the Apiary Inspectors of America was the economics of beekeeping. For the apiary inspectors, particularly, the emphasis was on the economics of the treatment and control of bee diseases. Nosema was among the list of diseases which received special attention. With the spring months now upon us it might be well to review briefly the chemical treatment of Nosema and, in particular, the economic picture of such a control.

The list of chemicals tested against *Nosema apis* is quite impressive. It includes organic and inorganic agents, various antibiotics and other plant extracts. Space will not permit a discussion of the entire list. Suffice it to say that very few of these chemicals have given any indication of controlling the parasite and only one of these, the antibiotic, fumagillin, has been proved capable of doing the job in practical beekeeping. The reader will recall that in the March issue of this Journal, Dr. Jamieson, of the Canadian Department of Agriculture, presented data which demonstrated ". . . the effectiveness of the Fumidil-B in controlling Nosema in both packages and overwintered colonies."

In the late spring of 1954 a suitable preparation of fumagillin, Fumidil®-B (Fumagillin, Abbott), was made available to the beekeeper. Fumidil-B contains fumagillin in a form which will dissolve easily in water. Now a new improved formula of Fumidil-B is available; it provides a longer shelf-life in a bottle which has been opened. Thus, it is now possible for the beekeeper to use a portion of the bottle, replace the cap on the bottle, and then safely store the remainder, so long as it is kept dry.

All the evidence indicates that Fumidil-B attacks the actively multiplying disease-producing organisms in the gut of the bee. To be effective, therefore, Fumidil-B must be taken into the digestive tract by the bee. This can be accomplished by providing Fumidil-B in a sugar syrup as a supplementary feeding for the colony. In the naturally infected colony, there is a continuous source of reinfection, even while the medicated syrup is being fed. It is necessary, therefore, to provide continuous feeding of this syrup for a long enough time to destroy the continuing supply of parasites, so that the colony can build strength to overcome disease. Experience, so far, indicates that this period should not be less than 2-3 weeks or until there is a continuous and rapid emergence of young bees. For package colonies, a gallon of the medicated syrup, provided as soon as the colony is established, will usually provide sufficient fumagillin for this purpose. Since overwintered colonies are somewhat larger than newly established package colonies, a single gallon of the medicated syrup may be consumed too quickly to provide the necessary control of Nosema. Not less than 2 gallons of the medicated syrup should be considered for these colonies. There is increasing evidence that overwintered colonies may be even more profitably fed the medicated syrup in the fall if they are fed only once.

Fumidil-B is supplied in bottles of two sizes. The small bottle retails for $2.40 and contains sufficient fumagillin activity to medicate 5 to 6 gallons of syrup. Thus, the cost of Fumidil-B is about 40 cents per treatment. The large bottle retails for $28.50 and contains sufficient fumagillin activity to medicate 100 to 120 gallons of syrup. The cost of Fumidil-



The organisms of Nosema from a photo micrograph

B, in this case, is about a quarter per treatment. The small per cent of beekeepers who do not routinely give their colonies supplementary feed will have an additional cost for sugar. Even then the total cost is only about $1.00 per treatment, including the cost of sugar.

What may the beekeeper expect in return for the cost of Fumidil-B? As a result of extensive field studies, Dr. Farrar of the U. S. Department of Agriculture reported as much as 25 to 30 per cent increase in honey production by package colonies fed this antibiotic when they were established. Dr. Jamieson has reported that ". . . significantly increased production was obtained in package colonies fed fumagillin . . . " in Canada. Recent reports to us from practical beekeepers all show increased honey production following the use of Fumidil-B during the 1955 season. One such report, from the Hubbard Apiaries in Michigan, states that about 15 pounds more honey had been extracted from each Fumidil-B treated package colony than from the untreated colonies in their preliminary extraction alone. Another large midwestern honey producer, Lakeshore Honey Farms, Inc., found, in a controlled study involving over 600 colonies that the Fumidil-B treated colonies, produced, on the average, one more super (25 to 40 additional pounds of honey)) per colony than those left untreated. The 1956 report from Lakeshore Honey Farms indicates that even with an extremely short honeyflow, only seven days in a two-month period when the bees could gather nectar, the crop of honey was approximately 85% of normal. Their report states, "When you realize that during these seven days they also gathered all the food they needed to live on and to raise brood, you can appreciate our colonies were in very good condition. We used Fumidil-B in the South on all the nuclei boxes. We know that it was a great help to build up these boxes, and to make the worker bees live longer. Observations in Roseau, Minnesota, definitely prove this to be true." Other beekeepers report similarly favorable results. Schultz Honey Farms in Wisconsin reported, "While the honey producing months were cold and wet, drastically reducing the total crop, we fared rather well when compared with the production of other nearby producers. We haven't come across anyone in the Fox River Valley with a higher surplus average per colony. Using Fumidil-B in our judgment was an important factor in our good production."

Thus, scientific laboratory experiments, verified in carefully checked field studies under practical apiary conditions, emphasize that Fumidil-B is an important supplement to management. Neither Fumidil-B, nor any other medicinal agent that may develop in the future, can be expected to completely replace good management. On the contrary, the better the management, the greater the profit from the use of Fumidil-B.

THE POLLINATION OF WHITE CLOVER*

by Nevin Weaver

Texas Agricultural Experiment Station, College Station, Texas

SUMMARY

An experiment was conducted to determine the value of honeybees in the pollination of white clover. Caged plots of white clover containing small colonies of bees yielded about seven times as much seed as plots that were caged to exclude all bees. Factors other than the amount of cross pollination appeared to limit seed yield in the plots that the bees could work.

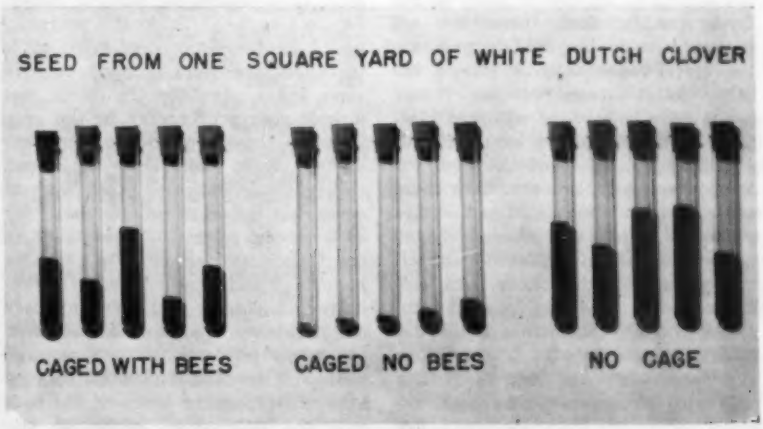
White clover, often called white Dutch clover, is used extensively in the South as a pasture plant and for soil building in rotation with rice and other crops.

Fifteen plots 5x36 feet were established in a field of Louisiana white clover at the Rice-Pasture Experiment Station near Beaumont to find out whether white clover requires cross pollination for maximum seed yield, and the extent to which honeybees pollinate this clover.

Cages 6x6x36 feet were constructed over 10 of the plots. Small colonies of bees were placed in 5 of the cages, and the other cages excluded bees and other pollinating insects from the clover. Five plots were left uncovered so that clover growing under natural field conditions could be compared to the caged clover.

The seed from one square yard of the clover from each plot are shown in Figure 1, and the pounds per acre of number 1 seed are given in Table 1. It will be noted that the plots that were caged with small colonies of bees yielded an average of about seven times as much seed as those that were caged to keep the bees out. Since the presence or absence of bees was the only known difference in these plots, the sevenfold increase in seed yield was due to pollination by honeybees. No insecticide was applied to these plots, and moths, butterflies, and other insects that live in the clover were fairly numerous, both inside and outside of the cages. It appears, therefore, that these insects do very little pollinating of white clover. Most of the seed produced in the cages without bees probably came from a few plants that were self-fertile, but some of them may have resulted from cross pollination by the insects that lived in the clover, or from

*Taken from Texas Agricultural Experiment Station Progress Report No. 1926.



Seed from one square yard of White Clover from each of 15 plots with pollination as shown

Table 1. Pounds of white clover seed per acre in each of 15 plots with pollination as shown

Pollination	Pounds of seed per acre in plots					Average[1]
Caged with bees	98	63	139	36	76	82
Caged no bees	1	5	8	15	29	12
No cage	133	102	156	159	93	129

[1] A difference of 40 or more pounds per acre in the average yields indicates that the difference is statistically significant; a difference of 56 or more pounds, that the difference is higly significant.

contact between blossoms of different plants.

It will also be noted that the clover in the uncaged plots yielded slightly more seed than the clover in the plots that were caged with bees. This appears to have been due to the effect of caging on the vigor of the plants. There were virtually no other efficient pollinating insects in the field, but there was an apiary at the edge of the field, and there were, apparently, enough honeybees to visit all of the blossoms before they withered. While foraging from white clover, the bees come into contact with the sexual columns of the blossoms, and pollen grains cling to the forked hairs on their heads and bodies. Since some of this pollen may brush off on the sticky female part of the flower, there is a chance that almost every blossom visited will be cross pollinated.

White colver blossoms may remain open and fresh looking for more than a week if they are not pollinated, but they begin to wither a few hours after being visited by a bee. Because of this, an examination of the field will reveal whether there is an adequate number of pollinating insects visiting the clover. If there are open, fresh-looking blossoms from the bottom to the top of many of the flower heads, then there are not enough bees in the field to pollinate the clover adequately. If, on the other hand, many of the flower heads have a band of withered blossoms at the bottom, a band of buds at the top, and about 20 or fewer open blossoms in between, then there are adequate numbers of pollinators present. After the blossoms have withered it is impossible to tell whether or not they have been pollinated until seed development progresses far enough so that the larger seed can be counted. If conditions are proper for seed set, adequately pollinated clover should have an average of more than 75 seeds per flower head, or about 2 seeds per blossom. More than half of the flower heads from clover that has not been visited by bees will contain no seed, but some of the flower heads will have up to about 5 seeds, and a few flower heads will have almost as many seeds as adequately pollinated clover.

The number of honeybees required to pollinate clover is affected by many factors, and is difficult to determine. The most important of these factors are the numbers of other pollinating insects that visit the clover, the competition from other blossoms for the bees' visits, the percentage of time that the weather allows the bees to work, the vigor of the clover plants, and the number of blossoms in the field. It is estimated that under ideal conditions, the bees from one strong colony should be able to visit all of the blossoms open on any day in more than three acres of the best stand of white clover. On the average it probably would not be economical to attempt to obtain this saturation pollination, and before the blossoms wither, the bees from one colony would probably visit almost every flower in a much larger area of clover.

The experience of beekeepers indicated that white clover is quite variable as a source of surplus honey. In some parts of Texas it apparently never yields nectar profusely, while in others the yield is good only in some years. In 1956 the clover was a good source of nectar in the area in which these experiments were conducted. Even under these conditions, observations indicated that several acres of clover were required for each strong colony of bees to store the maximum amount of surplus honey. Further study will be required to determine how many bees can profitably be kept on white clover for honey production in an average year, and the most economical balance between the nectar needs of the bees and the pollination needs of the clover.

The Greek Bee—from page 315

of nectar that when the frame is shaken, the nectar runs out of the hive and sometimes gets the bees so wet that they can hardly walk for quite awhile.

Endurance against Disease and Enemies

The endurance of the Greek bee can be regarded also as great. With almost insignificant precautions and endeavors, the Greek beekeeper can feel absolutely at ease concerning the health of his bees.

Both diseases of the brood, American and European foulbrood, are present as well as those diseases of the adult bee, among which is Nosema. However, owing to the strong character of the Greek bee, aided probably by weather conditions, soil and flora, these diseases are not troublesome. Acarine, at least for the present, is unknown in Greece.

These conditions should at least be regarded as favorable. From what I have learned from the old famous beekeepers, especially the migratory ones, that in the days before antibiotics, there were frequent outbreaks of disease and even absolute extinction of apiaries due to American foulbrood. On the other hand, amateur beekeepers of olden days had no fear of disease of the brood, even the malicious American foulbrood, and they were confident that the nectar of thyme, savory, and heath, and the insect secretion from the pine, strengthened the organism of the bee until the diseases passed away.

With respect to wax moths, *Galleria mellonella* and *Achroia grisella*, a colony with enough bees scarcely able to cover two frames can protect the whole of the hive—15 to 20 standard frames. It is understood, of course, that this refers to queenright colonies, not queenless ones.

TO COME

We expect to have an up-to-date report about Royal Jelly by R. B. Willson in a two-part presentation either in September-October; or October-November. There is so much interest in this that readers will be brought fully up to the present on the subject. Watch for it.

MEETINGS HERE and THERE

FESTIVAL OF PETS

New York Coliseum, November 21st through 24th

What a show this will be. Are honeybees pets? Nice question. In the eyes of the sponsors of this show the answer is yes and they would like to see some of the beekeeping groups or associations put on some real displays of bees and perhaps honey; observation hives; queens; colonies; beekeeping equipment. You can get a lot of information about this Festival from Murray Zaret, Editor of Pet-O-Rama, 1370 East 19th St., Brooklyn 30, New York. This magazine is devoted to the interests of pet fanciers and pet shop owners over the country. Often has articles and items about bees.

The Festival is sponsored by Pet-O-Rama and embraces an amazing lot of pets of all sorts and descriptions, tropical fish, birds, cats, dogs, reptiles and so on. The International Queens and Litter Show is scheduled four days, offering breeders of pedigreed cats an unequalled opportunity for the sale of kittens. The International Feather and Song Show put on by the Cage Bird Breeders of America has set up a program that will make this the biggest and most important bird show in the world. Also the International Guppy and Tropical Fish Show is scheduled for four days, the largest in America. Tropical fish are today the third largest single hobby in the world.

So there will be a lot of interest, likely many thousands of visitors, and some highly exciting exhibits and competitions. So come on you bee lovers, let's see what you can do. This is a new kind of show which will really build a fire under you.

1957 Beekeeping Short Course
Virginia Agricultural Extension Service
in cooperation with the
Richmond Beekeepers' Association
August 9 and 10
Central National Bank Building
3501 W. Broad Street
Richmond, Virginia

4 to 5 P.M.—Registration—A small registration fee will be charged to defray expenses.

5:00 P.M.—Welcome, President of Richmond Beekeepers' Association

5:15 P.M.—Announcements

5:15 to 5:40—Clarification of beekeeping terms—J. O. Rowell, V.P.I., Blacksburg

5:40 to 6:10—Colony development in relation to the hive—J. M. Grayson, V.P.I., Blacksburg.

6:10 to 7:00—Supper

7:00 to 7:15—Movie—"Apiculture" (colored)

7:45 to 8:15—Methods employed in swarm control—J. M. Amos, V.P.I., Blacksburg.

8:15 to 9:15—Effects of fungicides on honeybees—C. R. Willey, State Entomologist, Richmond.

9:15 to 9:45—Discussion of hybrid bees.

9:45 to 10:00—Questions and Answers.

August 10

10:00 A.M.—R. B. Marshall's Apiary
4015 Northrop Street

10:00 to 12:00—Demonstrations

a. Various methods of queen introduction — J. M. Amos, Blacksburg
b. Colony development—L. P. Arnold, Richmond
c. Methods of removing honey—R. B. Marshall, Richmond
d. Bee diseases—H. W. Weatherford, Vernon Hill
e. Super lifting device—Mrs. L. E. Wise, Richmond
f. Placing foundation in supers—William Haug, Richmond

12:00—*Lunch*—Bring a basket or covered dish to put with that of the other beekeepers for a picnic lunch. This will be the summer picnic of the Richmond Beekeepers' Association. Visitors away from home need not bring a dish but may buy potato chips, fruit, cookies, etc. The Richmond beekeepers have agreed that no one will go hungry! Come and bring a friend. Games and fun for the children in the afternoon.

Federation Convention
Columbus, Ohio—Jan. 27-Feb. 1

Remember and make your plans now for the convention of the American Beekeepers Federation, Neil House, Columbus, Ohio, Jan. 27th to Feb. 1.

Westchester County (New York), Shrub Oak, Aug. 18th

The Westchester County Association will hold its next meeting at the summer home of Mr. and Mrs. Jack Ross, at Shrub Oak, N.Y., on Sunday, August 18th, from 12 noon on.

All members and visitors are requested to bring their own picnic lunch and if possible some chairs. Don't forget to bring your bathing suits, as there is a lake for those who wish to swim. Coffee and cake will be served.

Please follow these directions:

Take Taconic Parkway, get out at Shrub Oak exit (Oscawana), turn left, continue with Route 6 through Shrub Oak—pass Socony Station—drive 2 more blocks, turn right at Mill St. Pass a traffic light, continue until you reach a blinker, turn right until you reach a fork in road—there is a grocery store—Taibis Grocery—turn left up a hill, continue for 2 blocks, you will see a luncheonette on right and Maple Hotel on left, turn left, go one block, then turn left again or ask where Boxer lives. Our house is on dirt road opposite the Boxers'.

Mrs. Alfred Roth

Midwestern (Missouri), Kansas City, August 4th

The Midwestern Association will hold its annual picnic on Sunday, August 4th, noon to 5:00 p.m., at shelter house No. 7, Swope Park, Kansas City, Missouri. A basket dinner will be served with an interesting program to follow and many prominent beekeepers are expected to attend. Everyone invited.

J. F. Maher
Secretary

Vermont Association, Bennington, August 24th

The Vermont Association will hold its annual summer meeting at the home of Mr. William J. Damour, 737 Main Street, Bennington, Vt. on Saturday, August 24. Business meeting at 10:00 a.m., picnic lunch at 12:00; afternoon program starts at 1:00 p.m.

Anyone interested is welcome to attend, whether or not he has bees. We are planning an impromptu afternoon program so that anyone will have an opportunity to ask questions; and get answers and opinions from authorities on the subject.

Bring samples of your honey for the honey table to compete for prizes.

Clyde N. Wood
Secretary

Purdue Field Day Lafayette, Ind., Aug. 7th

The annual Purdue University Field Day will be on Wednesday, August 7th, with a meeting in the morning in the Agricultural Building, a basket dinner for beekeepers and their families at noon, and a trip to the Purdue Agronomy Farm in the afternoon to observe the plant breeding and pollination experiments, with demonstrations in the apiary. There will also be separate sessions for the ladies.

B. Elwood Montgomery

Worcester County (Mass.), Oakdale, Aug. 10th

The Worcester County Association will hold its August meeting at the home of Mr. and Mrs. Carl Brackett, 208 Laurel St. Oakdale, Mass. on August 10th at 1:30 p.m. All members are requested to be present for the election of officers. Bring a basket lunch, your tables and chairs. Coffee and sweet corn will be served.

Peter S. Stapor
Publicity

Eastern Missouri, with St. Clair, August 6th

Reserve the date of Tuesday, August 6, for our next meeting at which the St. Clair Association will be our guests. I know you all want to be present to welcome them. Circle the date on your calendar now? You will receive a detailed notice later but do save the date.

Arrena S. Gerlach
Secretary

Kane DeKalb (Illinois) with Will, Grundy, and Kendall, Johnson Mound Forest Preserve, Aug. 25th

The Kane DeKalb Association will have the Will, Grundy, Kendall Associations join them for their summer meeting at Johnson Mound Forest Preserve Sunday, August 25. Johnson Mound is located north of Batavia Kaneville Road and about one mile north on La Fox Road and is also around three miles east of Route 47 and south of Alternate 30 west of Geneva.

Everyone, members or not, make plans now to meet your old friends and make new and take part in this meeting. Johnson Mound Forest Preserve is one of the scenic spots of Illinois and shelter is provided in case of rain. Mrs. Klebes, our hostess, announces a pot luck lunch will be served at 1:00 p.m. daylight savings time. Ice cream and coffee will be served by the Associations.

Ralph O. Klebes Pres.
Mrs. John Wetz Secy.

Southern States Beekeepers' Federation Winchester, Virginia, October 2-4

Annual convention of the Southern States Beekeepers' Federation will be in Shenandoah Valley's fruit center, Winchester, Virginia, Oct. 2-3-4. The first day offers a scenic tour sponsored by Shenandoah Valley, Inc., and the Byrd fruit industries. One of the outstanding attractions will be a visit to H. L. Maxwell's honey plant at nearby Berryville and the inspection of his portable island apiary. We will have more details later.

Eastern Apicultural Society Pennsylvania State University August 23-24

This will be the third annual meeting of the Society, accompanied by the first Eastern Honey Show. The Show Superintendent is George J. Abrams, University of Maryland, College Park, Md. Judges will be Dr. J. W. White, Ralph Gamber, Marvin Webster, Dr. J. E. Dyce, H. L. Maxwell, Dr. Frank Shaw. No entry fees will be charged and ribbons will be awarded for the first seven places.

In connection with the meeting, in addition to the Honey Show, there will be a Gadget Display, Honey Cookery and Baking contest, Friday Evening Dance, Ladies Tea, special tours. James I. Hambleton, U.S.D.A., is to give the keynote address and there will be a fine list of speakers. Patty Werts of Greensburg, will be presented as Pennsylvania Queen. There you have it, without the details. Worth anyone's time and travel.

Norfolk County (Mass.) Needham Heights, Aug. 4

The next meeting of the Norfolk County Association will be held Sunday, August 4, at 2 p.m., at the home of Mr. and Mrs. John Heemskerk, 13 Beech Street, Needham Heights, Mass. Please plan to come and bring your lunch, chairs etc.

Edith L. Colpitts,
Corres. Sec'y.

Washington State, Ohanapecosh Hot Springs, Aug. 3

The Washington State Association will hold its Annual Potluck Picnic at *Ohanapecosh Hot Springs Camp Grounds* on Saturday, August 3, at 12:00 noon. There will be a short business meeting following the picnic.

Ohanapecosh Hot Springs is located in the southeast corner of Rainier National Park. Take either Chinook Pass or White Pass Highways and watch for Ohanapecosh signs.

Palmetto State Short Course, Clemson, Aug. 13-14

The Palmetto State Beekeepers' Short Course will be during the annual Farm and Home Week at Clemson College, South Carolina, August 13th and 14th. Visitors are welcome.

E. T. Anderson
Secretary

Reporters — Take Note

Please try to get notices of meetings to us before the 15th of the month. Also we cannot use reports of past meetings because room won't allow it. New officers however we try to announce. Thanks for your cooperation.

From the Department of Agriculture, Division of Apiculture, Nashville, Tennessee, courtesy of L. H. Little, State Apiarist. Governor Clement, proclaiming National Honey Week (1956). In the group, from left to right, C. G. McGehee, president of the Davidson County Beekeepers' Association; Governor Clement, Buford Ellington, Commissioner of Agriculture; J. D. McClanahan, president of the Tennessee State Beekeepers' Association; and L. H. Little, State Apiarist.

Pennsylvania float, from W. W. Clarke, Extension Apiarist and Editor of The Beginner and His Bees. Sign reads "Beekeeping through the years." Box hives to modern ones; with a 4-H theme. Good going.

Pleasant Words from Monty

B. Elwood Montgomery, Associate Professor in the Department of Entomology at Purdue University, presented honey in his promotion of "Honey for Breakfast Week" at four or five of the Lafayette luncheon clubs. He arranged ahead of time for honey to be served with hot biscuits, providing honey from the University apiary. During the meal he talked three or four minutes about honey as the oldest sweet known to man; a nutritious, delicious and romantic food; with a sparkle which is the rays of the rising sun reflected in the dew-kissed flowers of the early morning; the distilled essence of a thousand blossoms in every spoonful. There may be 25,000-39,000 miles of travel represented in every pound.

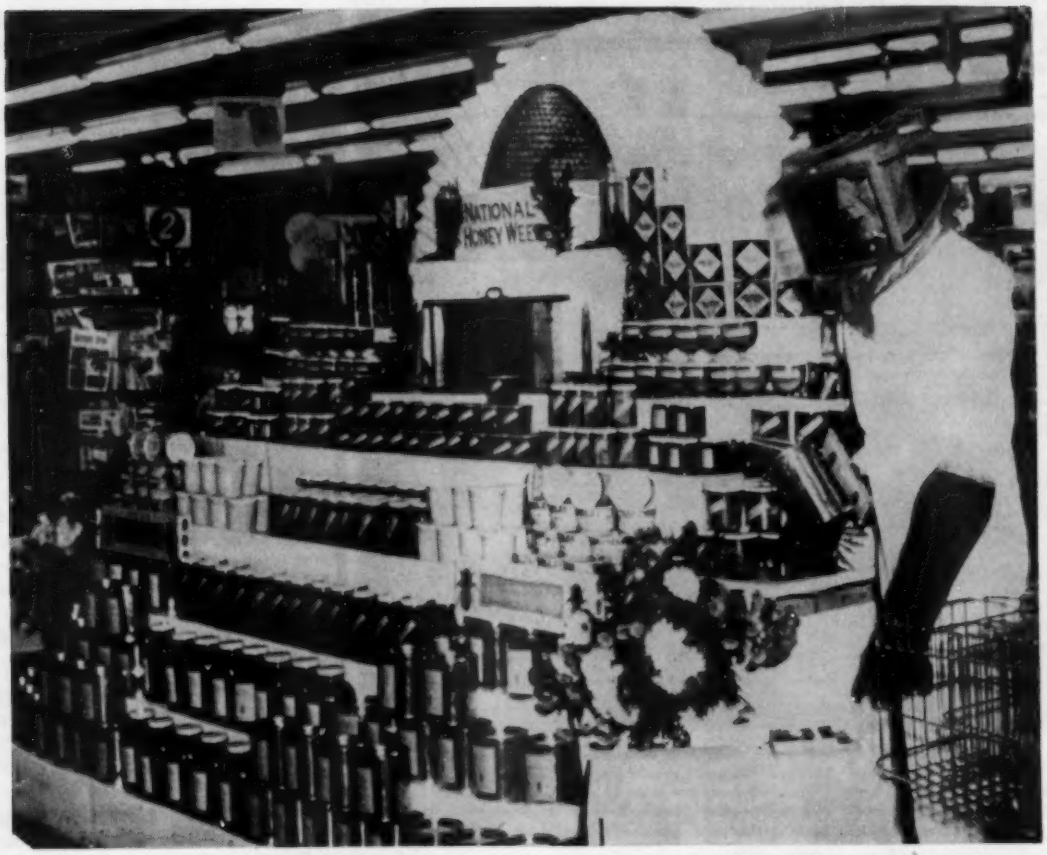
The editor of "Optigrams" (newsletter of the Optimist Club) was an agricultural economist. He reported Monty's speech like this:

At Wednesday's meeting Monty brought
Some product of the bee and taught
His myrmidons and cohorts how
The busy insect moves his prow
Some umpty ump or more bee miles
To fabricate the honey piles.
The sweetness went with biscuits well
And members felt inclined to tell
The bee professor 'twould be great
If, frequently, at lunch they ate
This nectar of the gods in comb
Which they can not afford at home.

New Polish Book

It is unfortunate that we are unable to read Polish. However, J. Wawryn L. Weber is the author of a 250 page board bound bee book entitled Selekcja-I-Wychow Matek Pszczelich. Context and illustrations would indicate that this is a complete work including chapters on anatomy, queen rearing etc. We assume that copies may be obtained by addressing the publishers Panstwowe Wydawnictwo Rolnicze i Lesne in Warsaw, Poland and that the price is $2.50.

First Place Winner in the 1956 Federation Honey Display Photo Contest



First place award was this display by B-Good Apiary, Robert G. Williams, Manager, Newberg, Oregon; at Erickson's Super Market, Cecil Tindal, Manager, South Commercial St., Salem, Oregon.
Photo by Beti Larwood

Shumans'
Italian Queens
Young Mated certified queens. Very good producers. Shipped Air Mail.
1 To 49 ..... $ .90
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407 Jefferson St., Hazelhurst, Ga.

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Canadian beekeepers have much in common with their neighbors in the U. S. If you are interested in bee activities "North of the Border," send us your subscription NOW. Subscription price, $1.75 per year in U. S. A.
Canadian Bee Journal
Streetsville, Ontario, Canada

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Carloads or less than carloads. Quote best cash price delivered to us. All grades; send samples.
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Dadant's Starline Hybrids
Queens with built-in Automatic Honey tank fillers
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Italian Package Bees and Queens For 1957
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PACKAGE BEES and QUEENS
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BRIGHT THREE BANDED ITALIAN QUEENS

Our Mott Strain is from early imported Italians. Their behavior is more according to pattern than most other races. They are usually gentle, hardy, good workers and not inclined to swarm which is worth a lot to honey producers. Our bees are free from all disease. Many inspectors recommend our bees and queens. Price balance of season— 1 to 50 - $1.00; 50 or more 90c.

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Caucasian and Italian

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100 up	.65

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Bee Calm with TAYLOR'S HIVE BOMB
The Push Button Bee Smoker

$1.29 plus freight at your dealer's

- no sparks
- no heat
- no fire hazard
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Queens remainder of season, 70c each
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without adding more colonies or doing more work. By actual test Starline Queens produce more honey than any other stock tested. You owe it to yourself to give them a trial.

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Let the cappings fall into the melter - which when melted run into the wax separator. A baffle plate holds the wax in the separator while the honey runs out the spout into a pan. The next morning remove the cake of wax - up to 20 pounds - of the finest quality. Makes a messy job clean and easy.

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100 up	1.10	100 up	.75

Upon request queens clipped and marked free.

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Editorial

Are Our Dollars Well Spent?

Some astonishing and revealing figures have come to the attention of the American Bee Journal. These are statistics issued by the Agricultural Research Service of the United States Department of Agriculture on the amounts spent for research related to beekeeping and honey for the fiscal years 1957 and 1958. The American Bee Journal felt it was its duty to publish these figures. They are as follows:

	Estimates Available 1957	Budget Estimates 1958
Production Research:		
Beekeeping:		
Bee diseases	$ 63,300	$ 66,700
Bee management investigations	108,340	113,350
Insect pollination investigations	115,490	120,900
Total, Beekeeping	(287,130)	(300,950)
Engineering investigations on apiary and honey house equipment	33,800	35,300
Total, Production Research	320,930	336,250
Utilization Research:		
New and improved uses for honey	85,000*	88,800
Total, Agricultural Research Service	$405,930	$425,050

* In 1957, in addition $10,260 has been allocated for a contract for studies of the use of honey in pharmaceutical formulations.

From other sources we are informed that the Agricultural Marketing Service of U.S.D.A., in 1956 paid $6,000 to New York, Colorado, Minnesota and Kentucky to match funds for expanding market outlets for honey. For the Market News Service $7,200 was appropriated, of which $4,200 went for the semi-monthly market news report and $3,000 for grade standards work on honey. For crop and livestock estimates which includes the July report on colonies of bees, the September report on honey production and stocks, and the annual honey and beeswax report, $30,000 was spent.

Serious consideration should be given these figures by every one of our readers. We have given them serious consideration. Certainly we can come to one conclusion—that the federal government has been and is most generous to the bee and honey industry and that the fine work of individuals and the American Beekeeping Federation in obtaining appropriations for research and reporting has been effective and rewarding.

We sincerely believe that good use is made of each and every one of these dollars. We personally know the men from the top down and they are all of high caliber and well qualified to do the work they are assigned. The appalling thing is that we don't know too much, or enough, about what they are doing and what they are accomplishing. Thus we are placed in the embarrassing position of wondering what are we getting for this money?

We know further that this is not the fault of these men. The policies of the United States Department of Agriculture are such that it is extremely difficult to publish this information. Doubtless there are other factors of which we, again, are unaware. But the crux of the matter is that we as taxpayers have the right to demand that we know what is being done and what results are being obtained.

It is high time that the red tape of government be cut apart so that the research work of the federal agencies and the results can be known by the industry. Only then will we know that our dollars are well spent.

Wyoming Backs Check-Off Plan

Recent action by the Wyoming Beekeepers' Association should be of interest to all segments of the industry. At an executive board meeting July 9, 1957, the vote was unanimous to support the Automatic Check-Off Plan as recommended by the American Beekeeping Federation. Through their publication, "Wyoming Beelines," producers are urged to support the plan, and to urge all packers with whom they have contacts, to support the Check-Off Plan. The pamphlet explaining this plan was included in their "Beeline" issue.

Harley K. Kittle, George B. Krause, and Charlie G. Miller, officers of the association, want to know what other state associations are doing about promoting the Check-Off Plan—how many are taking action and how to activate those who aren't. They say it is a matter of education and they feel all segments of the honey industry have a duty and responsibility to perform toward those who are less informed.

The Wyoming beekeepers are progressive. Wyoming was among the top ten states in supporting the Federation in 1956, and there was considerable support of the Check-Off Plan that year. They contributed generously to the American Honey Institute. This year Wyoming is one of the few states to have a honey house sanitation code enforced. Their producers turn out a premium product and are proud of it.

Wyoming's state association officers have this to say, *"Beekeepers are not going to lose their shirts if they are not afraid to roll up their sleeves."*

Come on you 47 other states! Wyoming has given you something worthwhile to shoot at.

World Wide Honeys

A recent letter to this office wished there were some place to obtain honeys from all over the world. Another had tasted green honey in Germany and wished to know its source "apparently from coniferous trees."

In response to our inquiry our old friend Andre Prost of New York sent us a price list issued by one of his outlets, S&L Honey Center of 1016 Lexington Ave., New York City 21, N.Y. listing some 51 honeys from 22 countries besides 57 from the U.S. and Canada.

While we did not find listed a German honey, there was one from France from coniferous fir trees of the mountains, "Bouchardeaus" selling at $1.85 for a 15½ ounce jar.

In American honeys we find a 16 oz. jar of basswood at 59c, while the top is a 20 oz. jar of tupelo at $1.29—postage to be added.

—The Market Place—

BEES AND QUEENS

CHOICE BRIGHT ITALIAN queens $1.00 each, Sheppard Apiaries, Aberdeen, N.C.

YELLOW ITALIAN QUEENS—Real producers. Gentle, easy to handle. Satisfaction guaranteed. 1 to 10, $1.10; 11 to 100, $1.00. Prepaid Air Mail. Hignite's Bee Farm, 230 So. Lynchburg, Baytown, Texas.

CARNIOLAN QUEENS $1.00 each; 6 for $5.00. Air Mail. Leo Wardell, Route 6, Palestine, Texas.

HIGH GRADE QUEENS, Jay Smith strain, $1.00 each. Dalice E. Crawford, Rt. 1, Haw River, N. C.

DADANT'S STARLINE hybrids and our regular Italians; Extra good workers and very gentle. 1 to 25—$1.10, 25 to 100—$1.00, 100 up—$ .90. Add 25c each for Starline hybrids. Alamance Bee Company, Geo. E. Curtis & Sons, Graham, N. C.

3 BAND ITALIANS AND Carniolan Queens $1.00. Luther Pickett, Efland, N. C.

Carniolan & Caucasian Queens untested $1.00 each. 100, $85.00. Tillery Bros., Greenville, Ala. Rt. 3 Box 85.

IT PAYS TO REQUEEN. Old queens in your hives cost a lot through lost production. Young queens pay for themselves and give a good profit besides. One super of honey difference in favor of the young queens is not too much to expect in most any location. We can furnish the best select young Italian laying queens from now until Oct. at $1.00 each; 10, $9.00; 25, $20.00. Prompt shipment. No disease. Air mail postpaid. H. C. Short, Fitzpatrick, Ala.

FOR SALE

100 hives bees 8 frames, 4 frame Root extractor. A. L. Walker, Rt. 2, Box 338, Vacaville, California.

ROYAL JELLY. Nationally known "Api-Vitalex" brand, hi-potency Royal Jelly products. Capsules and Beauty creams. Wholesale distributors and agents sought everywhere; particularly among Beekeepers. Big profits available. Write airmail for prices and literature. "Api-Vitalex" Dept. ABJ, Box 6674, Medical Center Station, Dallas 19, Texas.

TWO HONEY MIXING AND STORAGE TANKS. Closed, double jacketed enamel lined with agitator. 1,200 and 5,000 pound capacity. A. I. Root Company, Council Bluffs, Iowa.

Copy for this department must reach us not later than the tenth of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

Rate of Classified advertising — 16 cents for each word, letter, figure or initial, including the name and address. Minimum ad, ten words.

As a measure of precaution to our readers we require reference of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on comb must guarantee them free from disease or certificate of inspection from authorized inspector. The conditions should be stated to insure that buyer is fully informed.

FOR SALE—Two frame reversible, Woodman extractor, with power attachment, $30.00. Four frame reversible Woodman extractor with hand crank, $45.00. Both like new. Iven Wisherd, Bruce, Wis.

HONEY TINS used once 25c each—Jewett & Sherman Company, 1200 West 12th St., Kansas City, Missouri.

FOR SALE—Royal Jelly and The Little Queen Royal Jelly Extractor. Royal Jelly Enterprises, 1017 Los Carneros Avenue, Napa, California.

ROYAL JELLY. Fresh, Pure, and Natural; ½ oz. $9.00, 1 oz. $16.00. Special prices for doctors and cosmetic firms. Also honey enriched with Royal Jelly. O.K. Anderson & Son, Box 193, Coffee Springs, Alabama.

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WANTED—Extra white and light amber honey. Let us ship you the containers. Sell us your honey for CASH on delivery. The Hubbard Apiaries, Manufacturers of Bee Supplies and Comb Foundation, Onsted, Mich.

WE ARE PAYING top market prices for beeswax. Ship to any one of our plants: Sioux City, Iowa; Lima, Ohio; Rogers, Texas; Waycross, Georgia; Anaheim, California. Sioux Honey Association, 509-11 Plymouth St., Sioux City, Iowa.

WRITE FOR SHIPPING TAGS and current quotations on rendered beeswax. Any amount from one pound up bought. If you have 25 pounds or more, save 25% by letting us work it into foundation for you. Walter T. Kelley Co., Clarkson, Ky.

SECTION AND CUT comb clover honey. Clarence W. Vogel, Plymouth, Ohio.

WAX WORKERS render and buy beeswax, manufacture plain and WAVY-WIRED foundation. Prices and shipping tags on request. Wax Workers, Ithaca, New York.

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THE BIGGEST BEE SUPPLY CATALOGUE PUBLISHED (84 pages) free for the asking. Big factory manufacturing a complete line of wooden goods, comb foundation, metal goods, veils and gloves, carloads in stock, daily shipments, save 20% WALTER T. KELLEY CO., CLARKSON, KY.

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HELP WANTED—Seasonal, year around. Experienced or inexperienced. In Texas, North Dakota. Stewart Apiaries, Trenton, Texas.

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HONEY PLANTS our specialty. Catalogue on request. Pellett Gardens, Atlantic Iowa.

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THE AUSTRALIAN BEEKEEPER — The senior beekeeping journal of the Southern Hemisphere provides a complete cover of all beekeeping topics in one of the world's largest honey producing countries. Published monthly by Pender Bros. Pty. Ltd., Box 20, P.O. Maitland, 3N, N.S.W., Australia. Subscription by Bank Draft or International M.O.10/-(approx. $2.15) per year, post free. Sample copy free on request.

BEES REMOVED FROM house or tree to hive without touching either house or bees. Bees will then move honey into hive. Save property, honey and bees with my method. Send $2 for details. Satisfaction guaranteed. George Hawkins, Rt. 1, Lawson, Mo.

ROYAL JELLY BEAUTY CREAM—1 oz. Royal Jelly Beauty Cream $3.00, $20.00 per doz., 2 oz. $5.00, $38.00 per doz. Prepaid in the United States. Prairie View Honey Co., 12303 12th St., Detroit, Mich.

KNOW interesting facts about the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarth Dist. Nainital, U.P., India, and obtainable from them. Subs. Rs9/-, or S.15/-, or $2.25 yearly. Sample copy, post free, Rs. ¼/-, or S.2/6 or 40c (International money order). Payment in mint postage stamps of your country accepted.

RANCH MAGAZINE—Do you find it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information of range sheep than any magazine published. Subscription 1 yr., $3.00; sample copy 25c. Box 189, San Angelo, Texas.

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Biological Control of Spotted Alfalfa Aphid

We are indebted to Glenn Gibson of Oklahoma for the information that the spotted alfalfa aphid is causing heavy losses to growers and for sending to us an article by Irvin M. Hall and Paul H. Dunn which appeared in the February, 1957, issue of California Agriculture, entitled "Fungi on Spotted Alfalfa Aphid."

In California, the distribution of this pathogenic fungus has been both by natural means and by an artificial distribution program in which 1800 cultures were placed in infested fields in 12 counties. The results have been spectacular and have resulted in widespread control of the aphid by the fungi.

Pollens and Antibiotics

Certain tests by Rene Chauvin at the apicultural Station in Bures-sur-Yvettes in France and by Doctor Lenormand affirm that certain pollens have antibiotic content. Corn, dandelion, horse-chestnut, poppy, and fruit trees have either growth factor or antibiotic content. Dandelion and horse-chestnut have both.

(Alin Caillas in "Abeilles et Fleurs" May 1957)

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Queens available after May 12
$1.00
D. T. WINSLETT
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Three-banded Italians
Quality and service guaranteed to please.
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Rt. No. 2, Hattiesburg, Miss.

We render old combs, cappings, and slumgum for beekeepers. Our steam wax presses get every available ounce of wax out of this material. Send for terms.
Dadant & Sons, Inc. Hamilton, Ill.

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Requeening in early fall will assure good wintering, and insure a crop of honey next season, all other factors being normal.

There are queens, and just queens; but the labor of installing is the same whether they are uniformly good, or mediocre. The bees themselves will soon decide the difference. We specialize in rearing only QUALITY QUEENS.

Dadant "Starline" Hybrids		"Magnolia State" Italians	
1 - 24	$1.35	1 - 24	$1.10
25 - 99	1.25	25 - 99	1.05
100 up	1.10	100 up	1.00

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—Crop and Market—

by M. G. Dadant

THE CROP—Too early yet to get a comprehensive idea of the total crop. Florida with a less than average orange crop has somewhat recuperated in the mangrove and palmetto sections but will hardly have the crop of 1956. Texas, so far, in spite of or rather because of excessive cool rains, dropped on the vetch and crimson clover flows. The South generally had similar cool and wet conditions; California looked exceedingly promising but cold wet weather was followed by hot and dry so that the desert plants did not make the yield that earlier promised. Only Georgia seems to have been in the good graces of the weatherman after the severe droughts of a year ago, with a better crop than in 1956, so far. The balance of the South, similarly has not, up to July 1, gotten the honey of a year ago. Virginia and the Carolinas are perhaps up to a year ago, but farther north the crop was a disappointment. Both New Mexico and Arizona report short early crop both on account of the weather and of spray poisoning. The latter if widespread may well influence any improvement from later alfalfa.

In most central and northern areas the beginnings of the clover and other flows were retarded by cool and wet weather, sometimes to the extent that the crops will be short as a consequence, while farther north and in Canada, the cool weather abated before the major flow broke, and as a consequence, these sections were in best condition to profit by the hot dry weather which later developed.

All in all there can be no reason for inferring that the weakening in the west coast markets was attributed to a possible bumper 1957 crop.

Prospects

California seems to be past much improvement in the waste areas. In fact many bees have already left for the irrigated sections either for nectar or for pollination. Whether the alfalfa crop will be above ordinary is still a moot question, apparently it will have to be tops to bring the total crop up to 1956. Arizona and New Mexico need right conditions yet for good prospects. Texas is hoping for Hubam and a cotton flow. Prospects are better in Oklahoma, less in Arkansas except along the Mississippi.

Farther north in the clover areas there is much hope that the crop will greatly exceed 1956 with a good deal of soil moisture and hotter, drier weather, though Ohio and Pennsylvania are disappointing as are Maryland, New Jersey, and the New England States. Except for southern Wyoming, the Intermountain States prospects look very good, Kansas perhaps fair, Nebraska below, Montana good, as is Idaho, with possibilities also for Washington and Oregon where the drier weather has come with prospects of better nectar gathering weather. It is in the Central West and in the northern plains area that best prospects seem to prevail.

But we must not forget that the earlier rains have resulted in heavy weed growth and as a consequence, the late summer and fall flowers, may in themselves make a saving situation, particularly for the Central South, and even add to the results from the Central West and the East, although the color and perhaps the flavor of that crop may not be all that might be hoped for.

Crop Equal to 1957?

Probably so, owing to the better conditions in the Central West and in the Intermountain States and the possibilities of late flows. It does look like the central clover areas may have some fine white honey to share the market with the intermountains and such orange as has not already been sold. Surely Florida, California, Texas and the Southwest do not lead us to believe that they will swell the excess over 1956. Georgia will, and undoubtedly the Central West and mountain irrigated sections may exceed last season, but it is too early. Favorable conditions may produce an excess; unfavorable ones might even reduce under a year ago.

New Crop Sold

Some of the new crop, especially orange has reached the markets. The tendency to depress the markets, probably owing to a carryover by some of the packers and the lighter foreign demand has been noticeable, with offers of 1c to 1½c below two months ago, but there has been a rather favorable trend to orange honey prices. Foreign inquiries are just now coming and heavy competition is apparent on the part of the quoters. Farther east there seems to be little tendency to bear the market, though in Florida, a lower price has been offered for amber grades. We learn of some sales at 15c in the Central West for old stock honey but not enough of the new crop has appeared to base any predictions.

It looks like fine white honey will still be good property, since there is apparently more mixed stock than usual, and possibility of more if in some instances the heartsease and aster may be mixed with some of the earlier white flows in case of late extracting.

Canada

Eastern provinces seem to be sharing with the Middle West some of the hopes for a good crop following the disappointing early start of too cool and too wet. Farther west it is doubtful if the crop will rank much more than in 1956 and to the extreme west probably less, with the tendency for prices to hold well along with those of last year, according to the predictors.

Summary

All in all, early hopes of a bumper crop were given a blow by a continuation of the cold wet weather which held the bees back, boosted the plants, but interfered with the nectar gathering. In some cases this was followed by hot and dry weather which added to the discomfiture.

Where the blooming season was late enough to be spared the situation of plenty of flowers but no chance to visit them by the bees, then the prospects do look quite favorable, but there are a lot of disappointed beekeepers in the South and in the northern areas of this region particularly, but with the possibilities of some modicum of relief from possible later fall flows.

The starting price of honey certainly, we hope, is no indication of what the market for new honey may do, as it is too early. But we believe that central western and eastern beekeepers will hesitate before early disposal at prices below what they were at this time a year ago.

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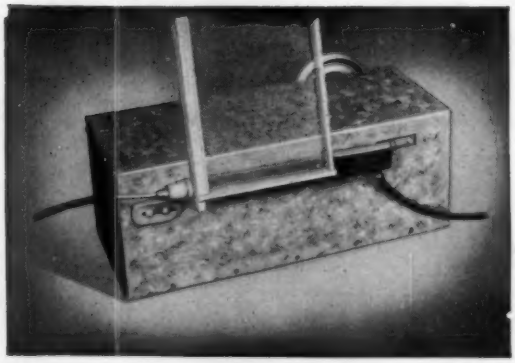

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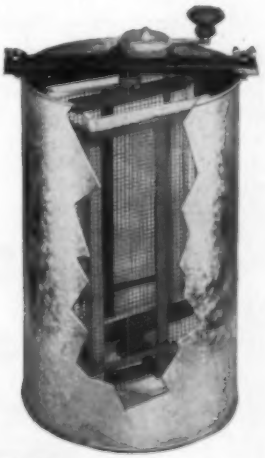

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